GROWING RACIAL INCOME GAPS AMONG COLLEGE EDUCATED WORKERS:

A DETAILED DECOMPOSITION OF THE CHANGES IN INCOME GAPS BETWEEN

WHITE MEN AND MINORITY MEN, 1993 AND 2003*

ChangHwan Kim
Minnesota Population Center
University of Minnesota
50 Willey Hall
225 19th Avenue South
Minneapolis, MN 55455
Tel: (612) 626-3933
Fax: (612) 626-8375
Email: chkim@ku.edu

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Abstract

Using the National Survey of College Graduate datasets, this paper estimates the significance in terms of income of native-born, college-educated male workers being African-American, Hispanic, or Asian-American. To this end, detailed decompositions of racial income gaps were conducted. The identification problem associated with Blinder-Oaxaca type decompositions is resolved by applying the averaging method. First, this paper demonstrates that the income gap between Whites and minorities has grown between 1993 and 2003. Second, racial discrimination has not lessened over this time period; instead, it has substantially increased. Third, the rising skill premium accounts for very little of the widening racial income gap. Fourth, even though all three racial minorities have accumulated more human capital than Whites over this time period, their income growth rates do not correspond to the growth of their human capital. Fifth, in addition to human capital, there are other race-specific components responsible for the growing income gap between Whites and minorities. Race-specific reasons for these phenomena are discussed.

The inequality of racial income in America declined after the civil rights movement of the 1960s and progressive legislation in the 1970s. Since the 1980s, however, it has been stagnant, if not increasing (Cancio, Evans, and Maume 1996; Smith 1993; Bound and Freeman 1992). This is thought to result from both both increased returns to further education and growing inequality in the labor force as a whole (Juhn, Murphy, and Pierce 1991; Smith 1993; Mason 2000). The overall growth of compensation to skills and the concentration of racial minorities at the lower end of the skills distribution are said to account for the widening disparity in racial income. For example, Smith (1993) has argued that once we adjust for these phenomena, racial gaps have continued to decline, even in recent years. In contrast to this "rising skill premium hypothesis," other researches suggest that discrimination has actually increased in recent years (Cancio et al. 1996; Wilson and Sakura-Lemessy 2000; Western and Pettit 2005; Massey and Fischer 1999) and that persistent discrimination is thus the main cause of stagnant or increasing racial income inequality. This latter view can be called the "discrimination hypothesis."

Given that the majority of high school graduates advance to post-secondary education (van de Werfhorst 2004; Grogger and Eide 1995) and that since the 1980s inequality among the college-educated has been rising faster than in any other group (Lemieux 2006; Kim and Sakamoto 2008), much of the sorting function of the education system seems to have been taken over by higher education. Differentiation within and across post-secondary educational institutions now serves as a major mechanism for sorting workers into vastly different occupational and earnings categories. The need for research into the sources of income variation among college-educated workers is at an all-time high. Some research has addressed this concern by studying the effects of different levels of education among the college educated (i.e., BA, MA, PhD, and other professional degrees). This research has yielded significant results but

not sufficiently substantive explanations of the growing inequality of racial incomes (Day and Newburger 2002). Another important criterion, used mostly in studies of income disparity between genders, is the effect of the field of study (Jacobs 1996; Morgan 2000; Roksa 2005). It is widely accepted that the financial returns in the labor market associated with different fields of study vary substantially, even among workers with the same education. However, whether these differences in income associated with different fields of study are further differentiated by race, and the effects this might have on the changing gaps in racial income, has been investigated much less.

Despite the relative lack of empirical research on the relationship between race and fields of study, different fields of study have been shown to have corresponding racial stereotypes. For example, Asian-Americans are typically assumed to be good at science and mathematics, training which rewards them with high salaries (Wong et al. 1998; Goyette and Xie 1999). African-Americans are believed more likely to choose social sciences, which are less lucrative than hard sciences and engineering in the labor market. If fields of study are in fact unequally distributed across the races, then unless these variables are controlled for, the estimated coefficients for race in regression models could be biased either downward or upward, depending on the fields of study in which members of a specific race are concentrated.

Furthermore, current theoretical explanations of the growing income inequality assume different income growth rates across fields of study. The skill-biased technological change theories, which are closely related to the rising skill premium hypothesis of racial income inequality, anticipate higher income growth for science and engineering majors than for other majors (Autor, Katz, and Krueger 1998; Card and DiNardo 2002), whereas other theories, such as those focusing on changes in power relationships in the workplace, predict higher income

growth for management and marketing majors than for other majors (Fligstein and Shin 2004; Hirsch and Soucey 2006). Given the uneven distribution of fields of study across races, these different income growth rates across majors could result in wider racial income disparities. Disentangling these effects is a sine qua non for a deeper understanding of the relationship between race and education.

Methodologically, economists and sociologist have frequently used Blinder-Oaxaca type decompositions in the study of racial (and gender) income disparities. Most studies have applied these methods to cross-sectional differences and only rarely to differences in income growth. Furthermore, because of the identification problems, these methods have serious limitations for estimating the separate contributions of various sets of independent variables. The aggregated coefficient (or discrimination) effect and the endowments (or distribution of explanatory variables) effect are invariant with respect to the choice of reference values, but the separate coefficient effects are arbitrary measures that vary with the choice of reference values (Jones 1983; Oaxaca and Ransom 1999; Yun 2005).

In this paper, I explore the differences in the growth and sources of income between college-educated workers who are White and those representing three racial minorities—African-Americans, Hispanics, and Asian-Americans—using the 1993 and 2003 National Survey of College Graduates (NSCG). To this end, detailed decompositions of the racial income gaps were conducted. The separate effects of field of study, level of education, and other control variables were estimated. By implementing the averaging method (discussed in detail below), I resolved the identification problems associated with Blinder-Oaxaca type decompositions, and I extended this technique to the decomposition of income growth. In doing

so, I have shown that the rising skill premium has not played a significant role in the growth of racial income gaps, and that racial discrimination did not decline between 1993 and 2003.

THEORETICAL BACKGROUND

The Significance of Race

Since the seminal work of Wilson (1980), "the declining significance of race" has been one of the most contentious hypotheses in the sociology of race. Some studies support Wilson's hypothesis (Farley 1984; Smith and Welch 1989; Farkas and Vicknair 1996; Sakamoto, Wu, and Tzeng 2000), and other studies refute it (Cancio et al. 1996; Maume, Cancio, and Evans 1996; Wilson and Sakura-Lemessy 2000; Western and Pettit 2005). Amid the controversy, there is some agreement: First, education is the most significant factor in explaining the racial wage gap (Glass 1999) and, second, the significance of race has decreased in a long term comparison.. The racial wage gap in the 1990s is clearly narrower than it was in the 1950s (Sakamoto, Wu, and Tzeng 2000). Disagreement usually occurs when the recent change of the significance of race is considered.

Studies using data from the 1980s and beyond argue that race continues to play a significant role in America's racial stratification. Cancio et al. (1996) used the Panel Study of Income Dynamics (PSID) and apply regression decomposition techniques to study racial inequality. They contend that after controlling for education, experience, and family background, discrimination against African-Americans increased between 1976 and 1985. Western and Pettit (2005) have argued that once the proportion of the population that is incarcerated and their expected wages are factored in, the African-American/White wage gap appears to be much larger.

Westen and Pettit's (2005) results thus imply that the previous estimates of the decline in this wage gap are somewhat exaggerated.

In contrast, although admitting that the African-American/White wage gap has stagnated since the early 1980s, Smith (1993) and Neal and Johnson (1996) claim that this is mostly because of the sharp rise in the return to education, which favors the more highly educated White workers, and in part because of the rising wage inequality, which disadvantages low-wage workers. Smith (1993) contends that once these effects are controlled for, the significance of race continuously declined in the 1980s.

Although most studies have compared Whites and African-Americans, the significance of race is not limited to these groups. After examining the 1950 and 1990 Public Use Microdata Samples (PUMS), Sakamoto, Wu, and Tzeng (2000) argued that the net effect of race has declined not only for African-Americans but also for American Indians, Japanese-Americans, and Chinese-Americans. Antecol and Bedard (2004) have investigated the differences across African-American, Mexican, and White men using the National Longitudinal Survey of Youth (NLSY), finding that experience has more influence on the Mexican/White wage gap than the African-American/White wage gap. Massey and Fischer (1999) have compared African-Americans, Hispanics, and Asian-Americans to Whites using the 1980 and 1990 Censuses. They concluded that African-Americans were more residentially segregated from Whites than were Hispanics or Asian-Americans in both time periods, although there was a trend toward racial integration over time.

Wilson (1980) originally asserted that well-educated African-Americans had (almost) reached parity with Whites, whereas less-educated, inner-city African-Americans still suffered from a lack of economic opportunity. He argued that the remaining disparity stemmed in large

part from previous discrimination. For this reason, Cancio et al. (1996) and Wilson and Sakura-Lemessy (2000) tried to limit their sample to the middle classes, using either education or occupation variables. But because of an insufficient sample size in the PSID, Cancio et al. did not examine changes in the wage gaps for college-educated workers. Studies of the declining significance of race are abundant, but studies of college-educated workers, which are more closely relate to Wilson's hypothesis, are relatively scarce.

The Rising Skill Premium

During the last quarter century income inequality has steadily risen. The most popular explanation for this phenomenon among economists is the rise of the skill premium. As the demand rises for skilled labor, so does its price. Over the last 25 years, those who graduated from college, and thus had high skill levels, earned higher real income than before, whereas those lacking a college education experienced stagnant or declining income.

It is suggested that the same theory that accounts for this rising inequality can explain the stable or slightly rising racial income gap (Juhn et al. 1993; Murphy and Welch 1992; Smith 1993). In other words, the main reason why African-Americans' income has not approached parity with that of Whites in recent years is because African-Americans' mean education level is lower than that of Whites; thus, the rising skill premium is, in terms of mean income, less beneficial to African-Americans than to Whites, even though equally educated African-Americans may enjoy the same skill premium. Given that levels of education among college-educated workers vary by race, the skill premium hypothesis suggests that the different distributions of education levels across race may be responsible for the rising racial income gap.

During the period of the declining racial income gap, from the 1940s through the 1980s, African-Americans' wages increased more than 50 percent faster than those of Whites (Smith

and Welch 1989). During the same period the relative wage gain of African-American college graduates was four times larger than that achieved by African-American high school graduates (Smith and Welch 1989:526). As a result, the education premium, defined as the net income gained from each additional year of schooling, becomes higher for African-Americans. The skill premium, in effect, rose faster among African-Americans before the 1980s.   Thus, in the historical context, the rising skill premium hypothesis tacitly implies that the skill premium is no longer rising faster for African-Americans than for Whites, but is stagnant.

The rising skill premium is said not to be limited to the college premium. College education is just one of many observable skills, and the rise in the demand for skill is ubiquitous; thus, the growing rewards from all kinds of skills should be observed everywhere (Juhn et al. 1993; Lemieux 2006).   Therefore, the differences in the distributions of skill-related factors across races are partly responsible for the rising racial income gap.

Field of Study

It is well documented that some fields of study offer larger salaries than others (Cebular and Lopes 1982; Berger 1988; Rumberger and Thomas 1993; Grogger and Eide 1995; Davies and Guppy 1997; Eide 1997; Song and Glick 2004; Walters 2004; van de Werfhorst 2004). Many studies have shown, quite conclusively, that graduates of liberal arts programs, such as the fine arts, humanities, and social sciences, generally earn less, fill less prestigious occupations, and are less likely to be employed than business, science, or engineering graduates. Even after controlling for the ability-sorting effects of college majors, there are large earnings premiums for certain majors (Arcidiacono 2003).

There is growing evidence that the distributions of fields of study vary by race. Goyette and Mullen (2006) and Xie and Goyette (2003) have noted that race influences the choice of

lucrative majors. Thomas (1985) has demonstrated that African-Americans are more likely than Whites to major in education, the humanities, and the social sciences. Song and Glick (2004) have reported that Asian-American men are just as likely to choose lucrative areas for their college majors as are Whites, and Asian-American women are more likely to choose lucrative majors than Whites. Song and Glick also note that children of recent immigrants are more likely to major in profitable areas than are immigrants who are already assimilated. In the same vein, Goyette and Xie (1999) have found that Asian-American youths expect to achieve higher levels of education than their White counterparts, due in part to the (immigrant) selectivity of unobserved characteristics.

Moreover, income growth rates have recently varied across fields of study. Using the NLSY and the High School and Beyond Survey (HS&B), Grogger and Eide (1995) have shown that there were significant differences in the income growth rates of the college premium across fields of study from 1976 through 1984. For example, those who majored in engineering gained 12 percent, whereas those who majored in education gained only 3 percent. They also reported that the proportion of students who are majoring in lucrative fields such as engineering and business has increased, whereas the proportion of students who study social science, education, or the humanities has decreased by one-third. They estimate that about 70 percent of the growth of the college premium stems from changes in the distribution of fields of study, and the remaining 30 percent is due to the changing financial return to majors.

Regarding income growth over time, different theories make different predictions about which majors become more lucrative over time. Card and DiNardo (2002) have proposed that the current increase in the skill premium is strongly associated with the use of computers. They found that occupations which require computer skills demonstrated higher income growth than

those that did not. As to the effect of college major, their findings imply that those who major in computer science and other engineering fields may earn higher income than those who do not. Therefore, the skill premium hypothesis suggests that the differences in the distribution of college majors across races are responsible not only for the racial income gap at a given time, but also for the rise in these gaps over time. However, the rising skill premium hypothesis does not predict that the rising skill premium will vary by race. According to this view, all races will experience the same rising skill premium. Thus, this hypothesis predicts that once the distributional differences are taken into account, most of the change in the racial income gap across fields of study will be explained.

Unlike the skill premium hypothesis, the changing workplace power relations hypothesis leaves ample opportunity for differences in the growth of the skill premium across majors and across races. This hypothesis explains the income differentials across different classes of workers in terms of differences in their negotiating power in the labor market, along with their differences in skill (Kim and Sakamoto 2008; Hirsch and Soucey 2006). Those with higher negotiating power should earn a higher income than those without it. Considering that the American economy has shifted from reflecting a stakeholder-values society to reflecting a shareholder-values society (Fligstein and Shin 2004), those who major in business administration or marketing-related areas may garner more profits than those who study in other areas.

Likewise, if racial minorities have less negotiating power than Whites, their income growth will be lower than Whites, especially in those areas where income tends to be determined by individual negotiations. Kim and Tamborini (2006) have provided some evidence for this speculation. They divided occupations into two classes, social-skill-oriented occupations and technique-oriented occupations and examined the effects of race in each category, arguing that

the significance of race has diminished in the social-skill-oriented occupations but has continued in the technique-oriented occupations.

Nonetheless, studies of the different effects of field of study have not been applied frequently enough to studies of racial inequality. Considerable attention has been paid to the mechanisms of choosing a field of study, and little attention to the results of that choice in the labor market (Cebular and Lopes 1982; Davies and Guppy 1997; Goyette and Mullen 2006). Studies of the latter type have usually addressed the impact of choice of field on gender inequality (Roksa 2005; Jacobs 1996; Joy 2003). A notable exception is a study by Eide (1997). He found that the increase in the college premium varies across genders and races. According to his research, 61 percent of the growth in the college premium for White men is due to price changes (or the skill premium), and 26 percent of it is due to change of major. For non-White men, on the contrary, only 8 percent of the growth can be attributed to price changes, whereas most of the increase in the premium comes from changes in field of study. None of these studies, however, tested the hypothesis about the declining significance of race among highly skilled workers, after controlling for field of study.

Family Background

Family background also affects changes in the racial income gap. Many studies have reported an independent effect of family background on the success of Asian-Americans in the labor market (e.g., Simpson 2001; Goyette and Xie 1999). Likewise, many studies have reported negative effects of family background on the performance of African-Americans in the labor market (e.g., Rumberger 1983; Keister 2004). Moreover, the rising importance of family background for labor market success seems to put more of a constraint on the prospects of African-Americans in the labor market than ever before.

Family background affects the probability of students' advancement to higher education, as well as the probability of choosing a financially profitable field of study (Weinberger 1998). It used to be thought that family background does not affect the likelihood of a college education beyond the entry level (Mare 1980). Recent studies, however, have found that the influence of family background continues to exert an effect beyond that point (Goyette and Mullen 2006; Mullen, Goyette, and Soares 2003). Mullen et al (2003) have found that family background has, albeit indirectly, substantially influenced the probability of advancement to professional and doctoral programs. They also found that the probability of going to graduate school depends on the areas of study. For example, those who major in biology are twelve times more likely to go to graduate school than those who do not. Given that the choice of study field is significantly affected by the parents' education, it is likely that family background continues to have an influence on labor market activities, after controlling for human capital factors.

Immigrants and the Effect of Region

Historically, geography has played a significant role in the racial income gap. The internal migration of African-Americans from southern to northern states has been one of the main reasons for the rise in African-Americans' mean income (Smith and Welch 1989; Black et al. 2006). The revival of the southern economy has also made a contribution (Smith and Welch 1989).

The importance of geography may be less significant for the gap between Whites and African-Americans now than before. However, it may be more important for other racial gaps (i.e., Whites versus Hispanics, and Whites versus Asian-Americans). The destinations of recent immigrants from Latin America and Asia have been far from random, and they are highly concentrated in certain regions. Thus, it is very likely that the huge influx of new immigrants

alters the outlooks of the local labor market. Reed's (2001) study provides supporting evidence for this reasoning: about half of the region variance in the Gini coefficient in 1997 can be accounted for by the influx of immigrants.

Immigrants may displace natives from some jobs, but at the same time they may create new employment opportunities for others (Resenfeld and Tienda 1999). Although new immigrants may displace native blue-collar workers, they complement white-collar workers (Walker, Ellis, and Bariff 1992). Given that the distribution of jobs varies by race, the huge influx of new immigrants to the Western U.S. should have different effects on the mean income of different races.

Hypotheses

This study tested the following hypotheses regarding changes in the racial income gap over time:

H1A: Given the perceived decline in the significance of race and the rising skill premium, when skill-related variables are taken into account, the proportions of the racial income gaps unexplained by the above variables decrease over time.

H1B: According to the discrimination theory, the proportions of the racial income gaps not explained by skill-related variables increase, or at least are stable, over time.

H2: According to the rising skill premium theory, the rising return to higher levels of education, and the differentiating return to different fields of study have the same impacts across races, thus once these factors taken into account the majority of the changes in racial income gaps over time will be explained.

Both the rising skill premium theory and the changing workplace power relations theory suggest that income growth rates vary across fields of study and levels of education. However, their expectations as to which fields of study show the higher growth rates than other fields differ as follows:

H3A: According to the skill premium theory, workers who major in engineering and other hard sciences experience higher income growth than other workers. In addition, the income growth rates are the same across races.

H3B: According to the workplace power relations theory, workers who major in business-related areas experience higher income growth than other workers, and in these fields, the income growth rate is higher for Whites than for minorities.

Finally, consideration of family background and geography suggests the following hypothesis:

H4: The effects of family background and geography on income growth vary substantially across races.

ANALYTICAL STRATEGY

Data

For this study, I used the 1993 and 2003 versions of the National Survey of College Graduates (NSCG). The NSCG is a follow-up interview with respondents who had at least a bachelor's degree at the time of the previous census. The Census Bureau drew a stratified sample from the previous Census, contacting individuals with a mail survey, and if necessary, a telephone or in-person interview (Black et al. 2006:302). A great deal of attention was paid to the

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accuracy of the education information received during the survey; thus, the NSCG seems to make much fewer errors concerning levels of education than does the Census (Black et al. 2006). It includes field of study, level of education, annualized income, race, and other relevant information.

Previous studies have investigated the varying effects of field of study across races, utilizing data from High School and Beyond (e.g., Simpson 2001; Eide 1997; Levine and Jimmerman 1995) or the Baccalaureate and Beyond study (e.g., Joy 2003; Thomas and Zhang 2005; Goyette and Mullen 2006). These data sets cover respondents' activities in the labor market shortly after graduation. The racial income gaps during the first year after graduation from college are about the same, but after three years the gap between Whites and African-Americans widens (Weinberger 1998; Weinberger and Joy 2007). The gaps also vary by field of study (Thomas and Zhang 2005). Thus, to study the total effect of field of study over a lifetime, data covering the whole population would be necessary. Moreover, because the High School and Beyond and the Baccalaureate and Beyond study data do not cover workers with more than a bachelors degree, generalization of the results beyond that population becomes an issue. For these reasons, the NSCG datasets are more appropriate for this study than are other datasets.

I limited my sample to male workers ages 25-64 years and born in the U.S. The proportion of females is negatively associated with the monetary return to a field (Roksa 2005) and the effects of major probably also vary by gender. Thus, an analytical strategy that examines only male workers was expected to make interpretation straightforward. Self-employed workers were excluded from the sample as well, because their incomes are far more sensitive to factors such as business cycles and business location than are the incomes of wage workers. Military personnel were also left out. Finally, 52,382 cases were analyzed for 1993 and 32,299 cases for

2003. Since each NSCG used a stratified sample from the previous Census, I applied the final sampling weights for all my analyses.

Detailed Decomposition: An Extension of the Blinder-Oaxaca Decomposition Methods

Blinder-Oaxaca type decompositions have been widely used in studies of racial inequality. Using OLS regression, we can estimate the mean income of a race to be:

$$Y_i^T = a_i^T + \sum b_i^T \overline{X}_i^T \qquad (1)$$

where Y_i^T refers to the mean log annual income for race i at time T. $\overline{X}_i^T$ denotes the mean of an explanatory variable for race i at time T, and b_i^T represents an estimated coefficient. In Equation 1, the income gap between race W (for White) and race M (for minority) at a given time, $Y_W - Y_M$, can be broken down as follows (for simplicity, I omit the superscript T indicating a time point for Equation 2):

$$Y_W - Y_M = \underbrace{(a_W - a_M)}_{\text{A1. Intercept Effect}} + \underbrace{\sum (b_W - b_M)\left(\frac{\overline{X}_W + \overline{X}_M}{2}\right)}_{\text{A2. Coefficient Effect}} + \underbrace{\sum (\overline{X}_W - \overline{X}_M)\left(\frac{b_W + b_M}{2}\right)}_{\text{A3. Endowment Effect}} \qquad (2)$$

where A1 represents the extent to which the income gap between Whites and minorities is attributable to the differences of the intercepts. A2 represents the income gap caused by the different treatments of the two races by society. A3 represents how much of the income gap is attributable to the different distributions of the explanatory variables. The sum of A1 and A2 constitutes the total discrimination effect.

Researchers often report A1 and A2 separately, and sometimes they include the individual contribution of each variable or a set of dummies. However, A1 and A2 covary

according to the choice of a reference group of dummy variables or the choice of starting point for continuous variables (Jones and Kelly 1984). Thus, any detailed decompositions using Equation 2 are arbitrary. This is the identification problem with Blinder-Oaxaca type decompositions (Oaxaca and Ransom 1999; Yun 2005). To resolve this problem, Yun (2005) has proposed the averaging method. By applying this method, we come to Equation 3.

$$Y_W - Y_M = \underbrace{(a_W - a_M) + \sum(\bar{b}_W - \bar{b}_M)}_{\text{B1. Intercept Effect}} + \underbrace{\sum(b'_W - b'_M)\left(\frac{\bar{X}_W + \bar{X}_M}{2}\right)}_{\text{B2. Coefficient Effect}} + \underbrace{\sum(\bar{X}_W - \bar{X}_M)\left(\frac{b'_W + b'_M}{2}\right)}_{\text{B3. Endowment Effect}} \quad (3)$$

where $\bar{b}$ refers to the mean of a set of dummy variables. For example, if five dummy variables are used to estimate the effect of education, defining one of them as the reference group, $\bar{b}$ is the mean of the coefficients estimated for the five dummies, one of which is zero by definition. b' equals $b - \bar{b}$. B1 indicates the extent of the racial income gap when the $\bar{X}$s are distributed evenly across all categories. In the education example, B1 represents the racial income gap, assuming the proportions for all education levels are the same (20 %) for both races. This is possible because the sum of $b - \bar{b}$ is zero. Thus, as long as the distributions of the $\bar{X}$s are the same, B2 also becomes zero. In other words, neither B2 nor its components vary as a function of the choice of reference group.
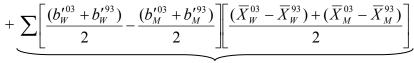
The original Blinder-Oaxaca decomposition methods, although very informative, are limited to the examination of the sources of the income gap. At best, they only provide information on how much of the income gap is due to discrimination and how much is due to endowment. Equation 3 allows one to do detailed decompositions of each variable and each set

of dummy variables and to calculate how much of the income gap is attributable to which variables and which components. Thus, the detailed decomposition using Equation 3 sheds new light on the sources of the racial income gap. A pitfall of this method is that the explanatory variables, including the continuous ones, must be represented by dummies.

To investigate the sources of the changing income gap over time, it is necessary to decompose $(Y_W^{03} - Y_W^{93}) - (Y_M^{03} - Y_M^{93})$, instead of simply subtracting the decomposed components at time 0 from the corresponding decomposed components at time 1 (XXX 2008). For this reason, I used Equation 4. [1]

$$(Y_W^{03} - Y_W^{93}) - (Y_M^{03} - Y_M^{93}) = \underbrace{(a_W^{03} - a_W^{93}) - (a_M^{03} - a_M^{93}) + \sum[(\bar{b}_W^{03} - \bar{b}_W^{93}) - (\bar{b}_M^{03} - \bar{b}_M^{93})]}_{\text{C1. Intercept Effect}}$$

$$+ \underbrace{\sum[(b_W'^{03} - b_W'^{93}) - (b_M'^{03} - b_M'^{93})]\left[\frac{\bar{X}_W^{93} + \bar{X}_W^{03} + \bar{X}_M^{93} + \bar{X}_M^{03}}{4}\right]}_{\text{C2. True Coefficient Effect}}$$

$$+ \underbrace{\sum\left[\frac{(b_W'^{03} + b_W'^{93})}{2} - \frac{(b_M'^{03} + b_M'^{93})}{2}\right]\left[\frac{(\bar{X}_W^{03} - \bar{X}_W^{93}) + (\bar{X}_M^{03} - \bar{X}_M^{93})}{2}\right]}_{\text{C3. Residual Coefficient Effect}}$$

$$+ \underbrace{\sum[(\bar{X}_W^{03} - \bar{X}_W^{93}) - (\bar{X}_M^{03} - \bar{X}_M^{93})]\left[\frac{b_W'^{93} + b_W'^{03} + b_M'^{93} + b_M'^{93}}{4}\right]}_{\text{C4. True Endowment Effect}}$$

$$+ \underbrace{\sum\left[\frac{(\bar{X}_W^{03} + \bar{X}_W^{93})}{2} - \frac{(\bar{X}_M^{03} + \bar{X}_M^{93})}{2}\right]\left[\frac{(b_W'^{03} - b_W'^{93}) + (b_M'^{03} - b_M'^{93})}{2}\right]}_{\text{C5. Residual Endowment Effect}} \qquad (4)$$

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[1] In another paper (XXX 2008), I have discussed in detail why the usage of Equation 4 is essential for the decomposition of the change in the wage gap over time.

In Equation 4, $C1$ is the intercept effect. It represents the expected change in the income gap when none of the coefficients nor the distribution of explanatory variables changes over time for both races. $C2$ represents the unique change in the income gap between races attributable to the changes in the coefficients, assuming that the distribution of explanatory variables is independent of (or not affected by) either of the races or time points. Since the declining significance of race hypothesis means that differences in how the races are treated by society are diminishing over time, this hypothesis predicts negative values for $C2$. In particular, the declining importance of race implies that the $C2$s for human-capital-related variables, such as field of study and level of education, are substantially negative. Likewise, the emphasis on the growing influence of family background on success in the labor market implies that the $C2$ for family background represents a contributing factor to the growth of the racial income gap.

In the same vein, $C4$ represents the unique contribution of changes in the distributions of explanatory variables over time. It reflects how much the racial income gap is expected to increase or decrease as a function of education level, college major, age, family background or residence.

Unlike $C2$ and $C4$, for which the interpretation is straightforward, $C3$ and $C5$ require caution. $C3$ represents the extent to which the cross-sectional difference of coefficients across races carry over, assuming that the distributional changes over time are equal for both races. In other words, the same amount of change in the explanatory variables can be more beneficial to a group with initially favorable coefficients. For example, the same percentage-point increase in the number of workers with a doctoral degree will raise the mean income more for a race with a higher coefficient for having a doctoral degree than for a race with a lower coefficient. As discussed above, the education premium used to be higher for African-Americans than for

Whites. If this situation is unchanged over time, but the proportion of highly educated workers increases equally for both races, then the income gap between Whites and African-Americans will be reduced.

The unique effects of the rising skill premium are captured by C5, the residual endowment effect. C5 represents how much the racial income gap changes as a function of the interaction between the mean differences in the distributions of explanatory variables across races and the changes in the coefficients, assuming the coefficient changes are equal for both races. That is, when we assume the distributions of explanatory variables are fixed with respect to the cross-sectional differences, and coefficients of changes over time are the same across races, then only the initial (or mean) differences in the distributions of explanatory variables can widen (or narrow) the wage gap between the two races. This is a key argument of the rising skill premium hypothesis: the equal growth of the skill premium across races is more profitable for the race with the higher initial level of skill than for the other race. The skill premium hypothesis thus predicts that if there is any increases in the income gaps between Whites and minorities, C5 will explain the majority of them.

Dependent and Explanatory Variables

I used log annual incomes for the dependent variables. The NSCG provides annualized incomes for workers with incomes above zero. It would be better to use hourly wage for a study like this one that seeks to address how different groups are treated differently in the labor market. Unfortunately, the NSCG does not provide the necessary information. However, I compared the log racial mean incomes from the NSCG with those for full-time workers in the Current Population Survey, as well as with the mean log hourly wages from the Current Population Survey Merged Outgoing Rotation Group. I found that the trends for the racial income gaps are

almost identical in all three datasets. In this study, incomes for the year 1993 are adjusted to the standard dollar value for 2003, using the CPI-X.

The races of interest are Whites, African-Americans, Hispanic-American, and Asian-Americans. Here, I focus only on the difference between Whites and other minorities and do not investigate the differences among the minority races.

I controlled for two education variables: field of study and level of education. I used ten broad categories for field of study (major): Natural Sciences, Social Sciences, Engineering, other science and engineering (S&E) fields, other non-S&E fields, Management, Marketing and Sales, health-related fields, Education, Arts and Humanities, and Social Service. Although it is possible to define fields of study more narrowly, the majority of the variance of income across fields is observed across these broad categories, and using more categories (i.e., more than 200) would not reduce the residual variance (Weinberger 1998). For the regression analysis, Natural Science was chosen as the reference group. For level of education, four categories were used: bachelors (BA), masters (MA), doctorate (PhD), and professional degree; BA was chosen as the reference group.

There were four age groups (25-34, 35-44, 45-54, and 55-64) and four regions of U.S. residence (Northeast, Midwest, South, and West). Family background was represented by mother's education and father's education (whether they had a bachelor or a higher degree).

Since this paper focuses on the rate of return for the characteristics that workers obtained before entering into labor markets, I did not add demand-side control variables such as occupation or industry. Workers do not bring demand-side variables to the labor market; instead, these are determined by the mutual decisions of employers and employees and, therefore, these variables themselves (let alone their coefficients) could be the result of labor market

discrimination. Moreover, racial differences in income are most likely to stem from differences in human capital (Glass 1999), and racial differences in the occupational distribution account for less than 20 percent of the earnings gap between Whites and African-Americans (Grodsky and Pager 2001).[2]

EMPIRICAL RESULTS

Table 1 shows the mean log annual income by race in 1993 and 2003. In 1993, all three racial minorities had lower mean incomes than Whites. African-American males' log mean income is .2043 log dollars (or 22.7 percent) lower than Whites'. Hispanics' and Asian-Americans' incomes are lower than Whites' by .1290 log dollars (or 13.8 percent) and .0083 log dollars (or .8 percent) respectively. Although all racial groups' incomes rose during this period, Whites' income grew faster than minorities'. Whites' mean income grew by .0596 log dollars, whereas African-Americans' mean income rose by .0290 log dollars and Asian-Americans' by only .0134 log dollars. For Hispanics the mean income dropped by .0217 log dollars. These data show that the racial income gap between Whites and minorities has widened: the gap between Whites and African-Americans widened by .0306 log dollars between 1993 and 2003. The gaps between Whites and Hispanic and Asian-Americans have increased by .0812 and .0461 log dollars respectively.

[Table 1 about here]

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[2] I found that models including demand-side variables along with additional demographic variables yield results that are basically consistent with those reported here, although, as expected, an additional 10 to 20 percent of the disadvantage of being African-American or Hispanic is explained by the demand-side variables. Detailed results can be obtained from the author on request.

As shown in Table 2, the relative order of the mean incomes across fields of study did not change between the two time points. Health-related majors earned the highest mean income and social-service-related majors earned the lowest. The changes over this time period, however, varied considerably across fields of study. The mean income for Management, Marketing, and sales-related majors grew by 11 percent, whereas the mean income for majors in education-related fields was down by 6 percent. Majors in five relatively remunerative fields (Natural Sciences, Engineering, Management/Marketing/Sales, Health, other non-S&E fields) enjoyed higher income growth rates than majors in the five least lucrative fields (Social Science, Education, Arts and Humanities, Social Service, and other S&E fields). The effects of field of study on labor market outcomes have therefore increased. These results imply that racial groups with a higher proportion of workers in these lucrative fields in a given time and racial groups that have likely switched into these fields between 1993 and 2003 would be expected to increase their mean income more than other races.

[Table 2 about here]

At both time points, White workers were more likely to earn their degree in these five lucrative fields than were African-American or Hispanic workers. Asian-American workers seem more likely than Whites to have majored in the five more lucrative fields. Between 1993 and 2003, however, the proportion of workers in these lucrative fields increased faster among racial minorities than among Whites. The proportion of White workers in these fields decreased slightly (less than 1 percentage point), whereas the proportion of African-American workers was up by 3.7 percent and the proportion of Hispanic workers grew by 3.1 percent. The proportion of

Asian-American workers rose by 1.1 percent. The Duncan dissimilarity indices confirm these findings. For example, to make the distribution of fields of study for African-Americans identical to that of Whites, 14.1 percent of African-American workers would have had to change their majors in 1993, but in 2003 this figure was reduced to 12.5 percent. In short, the change in the distribution of fields of study from 1993 to 2003 favors minorities. Hence, with regard to field of study, the changes in endowment effects (i.e., C4) across races seem to work in a way that narrows the racial gap between Whites and other racial groups.

As for level of education, as expected, higher levels are associated with higher incomes. At a given time point, professional degree holders earn the most. Between 1993 and 2003, professional degree holders enjoyed an ample mean income growth of 15.3 percent. BA and MA degree holders also made modest gains (about 5 percent). However, increases for PhD degree holders were much smaller, an average of 1.5 percent.

The Duncan dissimilarity indices for level of education, unlike those for field of study, demonstrate that over this time period the racial gap increased. The changes in the level of education attained do not necessarily seem to favor minorities; to the contrary, the direction of the effect is unclear. The distribution of education levels for Whites hardly changed. The proportion of African-Americans and Hispanics holding a bachelor degree was up by about 2.0 - 2.6 percent, at the expense of the MA degree holders. The only racial group showing a clear increase in education level is the Asian-Americans. The number of Asian-Americans with professional degrees has increased by 3.7 percent points between 1993 and 2003.

Regarding age, whereas most of the workers showed the trend expected of an aging population, the mean age of the Asian-Americans in the sample actually became lower over time. With regard to residential region, the proportion of workers living in the West increased

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substantially for Hispanics, whereas for Asian-Americans it significantly decreased. To investigate how these changes affected the income gaps between races, I performed decomposition analyses.

Cross-Sectional Decomposition of Racial Income Gaps in 1993 and 2003

For the detailed decompositions, I first estimated four regression models by race for each year. Table 3 shows the results. Second, all estimated coefficients were normalized by applying the averaging method. The last four columns in Table 3 show these normalized coefficients. Finally, using Equation 3 and Equation 4, I decomposed the racial income gaps and the changes in them over time.

[Table 3 about here]

[Table 4 about here]

In Table 4, the upper panel presents the results of the decomposition of the racial income gaps for 1993, and the lower panel presents the corresponding results for 2003. The effects of the explanatory variables are summed across six categories: intercept, field of study, level of education, age, region, and parents' education.[3] The first set of four columns after the list of variables gives the wage gap between Whites and African-Americans, the second set gives the gap between Whites and Hispanics, and the last set gives the gap between Whites and Asian-Americans. In each set, column B1 shows the intercept effect, column B2 displays the coefficient effects, and column B3 presents the endowment effects. (These column heads correspond to B1, B2, and B3 of Equation 3.) The sum of the three components equals the observed racial income gap.

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[3] The individual effect of each dummy variable can be found in Appendix Table 1.

In 1993, White workers' annual income was, on average, .204 log dollars higher than that of African-American workers. The income gap explained by the differences in the distributions of all the explanatory variables is .083 log dollars, or 41 percent. The remaining .121 log dollars (or 59 percent), which is equal to the sum of B1 and B2, is due to the different treatments of the two races by society in the labor market, or discrimination. These different treatments also account for the majority of the income gap for Hispanics (.077) and Asian-Americans (.032) compared to Whites. The priority of the different kinds of treatment in accounting for the racial income gaps also appears for 2003.

Between 1993 and 2003, the racial income gaps increased for all three minorities compared to Whites. In each case, almost all of the increase is due to increases in B1 and B2. These findings cast serious doubt on Hypothesis 1A, the declining significance of race. Not only are the proportions of the income gaps explained by the different distributions of explanatory variables (i.e., B3) smaller than those explained by the different treatments of the races in the labor market in a given year, but these proportions also declined over time.

Field of study is slightly more important than level of education in accounting for the racial income gaps. The relative contributions of B3 for field of study are greater than those for level of education in all the decompositions in Table 4, except for the gap between Whites and Hispanics in 2003. Moreover, the B2 values for field of study grew larger over time, whereas the B2 values for level of education decreased, and this was true for all racial comparisons. These findings suggest that field of study is a major human-capital variable determining the racial income gaps in terms of both B2 and B3, and its importance is growing.

Another common pattern observed in all the decompositions is that the education variables account for far less than half of each racial income gap. For example, the proportion of

the gap between Whites and Hispanics explained by the sum of B2 and B3 for education variables is .035 log dollars for 2003, a mere 17 percent of the total gap (.210). Adding another human capital component, age, improved the explanatory power of the human capital variables only slightly.

It is also worth noting that the sources of the income gap between Whites and Asian-Americans are different than the sources of the other racial income gaps. For African-Americans and Hispanics, both B2 and B3 contribute to the widening gaps. The B2s and B3s of the education variables contribute equally to the gaps for other minorities compared to Whites. For Asian-Americans, however, the endowment effects (B3) of the education variables reduce the gap; the coefficient effect (B2) of the education variables reduces the gap for 1993 and has a negligible effect for 2003. The intercept effect (B1) for the income gap between Whites and Asian-Americans offsets all the negative effects of B2 and B3 in reducing the income gaps, making the net effect positive; that is, the mean income of Asian-Americans is lower than that of Whites.

Decomposition of the Changes in the Racial Income Gaps over Time

Finally, I broke down the sources of changes in the racial income gaps between 1993 and 2003 into five components, using Equation 4. The detailed decompositions in Table 5 provide many interesting results which are not observable in the cross-sectional decompositions in Table 4. First of all, the sums of C1 and C2, which indicate whether or not the significance of race is declining, are positive for all races, that is, conducive to the gaps widening. This result is obviously contrary to the hypothesized decline in the significance of race. Therefore, H1B is supported instead of H1A.

[Table 5 about here]

The source of these racial gap-widening effects, however, does not appear to be racial differences in workers' education. The sums of the of education variables (C2), shown in parenthesis in Table 5, do not demonstrate any consistent tendency across races: it is negative for the change in the gap between Whites and Hispanics, but it is positive for the change in the gap between Whites and Asian-Americans. Once we separate the effect of field of study from the effect of level of education, however, a consistent pattern emerges across all races: the C2s for field of study are positive, but the C2s for level of education are negative. American society seeks to compensate workers ever more equally according to their *general* skills (based on level of education), but it seems to compensate workers differently depending on their *specific* skills (based on field of study). The differences are strongest for the fields of Management, Marketing, and Sales (see Appendix Table 2). In contrast, for Engineering and Natural Sciences they are virtually zero or slightly negative. These findings are consistent with the changing workplace power relations hypothesis (H3B) and contrary to the skill premium hypothesis, based on computer usage (H3A).

Second, the residual endowments effects (C5), which represent the impact of the rising skill premium, explain little of the increases in the racial income gaps. The sums of the C5s for education variables are negligible for the Whites/Hispanics comparison and for the Whites/Asian-Americans comparison. It is positive only for Whites/African-Americans comparison, but here the increase due to the rising skill premium is only .013 log dollars. Furthermore, when we add the effects of education to the effects of age, which is a proxy for another important human capital variable (i.e., labor market experience), the C5s for the

Whites/African-Americans comparison become even smaller. Therefore, the skill premium hypothesis (H2), which predicts that the C5 education variables will account for the majority of the increases in the income gaps, is not supported.

Third, the true endowment effects (C4s) for the education variables are negative for all races.[4] That is, the changes in the education distributions are contributing to a reduction of the racial income gaps rather than inducing an increase. Thus, the widening racial income gaps are by no means caused by the higher accumulation of human capital by Whites. The relatively greater accumulation of human capital over this time period by racial minorities is not remunerated accordingly for other reasons.

Fourth, among variables other than the ones related to education, we find race-specific patterns that need detailed attention. These findings generally support H4. First, the effect of parents' education on the change in the income gap between Whites and African-Americans is growing. This is occurring not because the parents' education levels are higher for Whites than for African-Americans, but because for some reason they predict the achievements of their offspring in the labor market. The corresponding effects of parents' education are minimal for other racial minorities. Investigating the reasons for this phenomenon is well beyond the scope of this study, but the topic needs consideration in future research.

The effects of region are much greater on the income gap between Whites and Hispanics than on the gaps for other races. The total effect of region is associated with an increase in the income gap between Whites and Hispanics by .054 log dollars, which accounts for about two-thirds of the total increase. The two main sources of this increase are C2 (.015) and C5 (.033). It

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[4] The sum of C4 and C5 corresponds to the subtraction of B3 for 1993 from B3 for 2003. For example, in the decomposition between Whites and Hispanics, the subtraction of B3 for 1993 (.052) from B3 for 2003 (.070) is .018, which equals the sum of C4 (-.009) and C5 (.027). Likewise, the sum of C2 and C3 is identical to the result of subtracting B2 for 1993 from B2 for 2003. Therefore, a simple subtraction of one cross-sectional decomposition from another mixes true effects with residual effects; thus, it may yield biased estimates.

seems that the labor market for Hispanics is regionally segregated. That is, region has more of an effect than in the past on how Hispanic workers are treated. Hispanics are concentrated in a single region, the West, where their mean income is lower than in other areas. The income gap was more disadvantageous for Hispanics in 2003 than in 1993. Note that 52 percent of Hispanics were living in the West in 2003, a 9 percent point increase from 1993. Although Asian-Americans were also highly concentrated in the West, their concentration was down by a 15 percent point in 2003 compared to 1993.

Age substantially affects only the change in the gap between Whites and Asian-Americans. Its effect is .048 log dollars, which is more than enough to explain the total increase in the income gap (.046 log dollars) between these two races. One reason why age influences the widening income gap between these two races is the growth in the proportion of young Asian-Americans. Young workers tend to earn less income than older workers. The positive C4 is a result of this distributional change. The other reason is probably also related to the increase of young workers. If young Asian-Americans compete against one another for the same jobs, but the number of jobs available to them is relatively fixed, we would expect their mean income to be driven downward by the simple law of supply and demand. Given that Asian-Americans are concentrated in the West, this is very likely. These substantially large effects of race-specific phenomenon suggest that racial relations in American society have become more complex; thus a pluralistic approach is more likely to address the race issues in contemporary American society than trying to find one simple explanation, such as the declining significance of race.

DISCUSSION AND CONCLUSION

In this paper, I have estimated the income gaps between college-educated White men and college-educated men of various racial minorities, after taking into account a number of control variables. Using the averaging method, I performed detailed decompositions of these racial income gaps. From a methodological standpoint, the results shed light on the usefulness of the averaging method and its application to the decomposition of income growth. From a practical standpoint, they allow us to tease apart different sources of the widening racial income gaps.

The income gaps between Whites and minorities widened between 1993 and 2003. The main reasons concern how society treats members of different races differently. The decompositions provide no support for Wilson's hypothesis of a declining significance of race. The rising skill premium hypothesis is not supported either. The increase in the skill premium has had, at most, only a slight impact on the growing income gap between Whites and African-Americans. For other racial comparisons, the skill premium hypothesis fits the data no better. Instead, the results corroborate the discrimination hypothesis. The sums of the intercept effect and the coefficient effects, which together constitute the discrimination effect, contribute to the size of the racial income gaps. These findings, however, do not necessarily imply that the hypotheses touting the declining significance of race and the rise in the skill premium are irrelevant to the racial income gaps for the whole population. Rather, the findings indicate that these two hypotheses lack explanatory power in accounting for the changes among the highly educated workers. This conclusion is basically consistent with those of Kaufman (1983) and Grodsky and Pager (2001), who have argued that racial discrimination is more severe at the high end of the labor market than at the low end.

Of the three racial comparisons conducted here, the income gap between Whites and African-Americans grew the least, although cross-sectionally this gap is still the widest. Some

would argue that the disadvantage for African-Americans' is growing much faster. Given the high incarceration rate among African-Americans males, Western and Pettit (2005) contend that their mean wages are overestimated. The likelihood that discrimination is substantially greater against highly educated workers, after controlling for the incarceration rate, is, however, apt to be low, because the proportion of college-educated African-American workers who are incarcerated is relatively small (Pettit and Western 2004). It is more likely that barriers to African-Americans entering the labor market (e.g., exclusion from better-paying jobs) may lead to an underestimation of their racial disadvantage (Grodsky and Pager 2001; Huffman and Cohen 2004). For instance, Bertrand and Mullainathan's (2004) experimental study has shown that in the Boston and Chicago areas, resumes with typical African-American names receive fewer interview offers than resumes with typical White names. That is, the effect of job segregation prevails over the effect of discrimination for the same job (Huffman and Cohen 2004). In this context, the fact that the probability having a job in one's chosen field of study is lower for African-Americans than for other races is suggestive. Among African-Americans who majored in the five more lucrative fields, the proportion whose work was relevant to their majors is 83 percent, while for Whites it is 90 percent.

All three racial minorities were more likely than Whites to major in Natural Science, Engineering, or health-related fields, which were associated with higher earnings in 2003 than in 1993. In contrast, there were almost no changes for Whites. The increased proportion in these financially profitable fields is particularly noticeable for African-Americans and Hispanics, who apparently were trying to adopt "strategic adaptation," which has allowed Asian-Americans to succeed in the American labor market by choosing financially rewarding majors (Xie and Goyette 2003). For Asian-Americans, the increase in doctoral and professional degrees, which

has resulted in higher returns in the labor market, was greater than for Whites. That is, racial minorities accumulated more human capital than Whites over this time period. Yet, none of the three racial minorities reaped higher income growth than Whites. The increased discrimination, discussed above, is obviously one reason, but there are other race-specific factors that have influenced the widening racial income gaps.

African-Americans' gains in income growth have not been enough to reflect their accumulation of human capital, mainly because of the lingering effects of their initially disadvantageous circumstances. This lower than expected income growth for African-Americans is attributable to the fact that they are still more likely than Whites to study in less profitable fields (for whatever reasons). Another reason is that initially remunerative fields become more lucrative, while initially less remunerative fields become less profitable. In other words, as Wilson (1980) predicted, the lingering effects of discrimination matter for African-Americans. In this respect, Wilson's theory is partially supported.

The growing disadvantage of Hispanics compared to Whites is due mainly to the negative effects of the region of residence, and not the lower income associated with their field of study or level of education. The separate contribution of the true endowment effect of education level actually favors them. Thus, the separate contribution of education seems to contribute 1.5 percent higher income growth for Hispanic workers than for Whites. This gap-reducing effect of education does not result in actually higher income growth for Hispanics because of the gap-widening effect of region. This implies that Hispanics' worsening disadvantage might somehow be related to the huge influx of new Hispanic immigrants. Even though I restricted my sample to native-born workers, if native-born Hispanics and Hispanic immigrants supplement each other in the labor market (Card 1990; Rosenfeld and Tienda 1999), the influx of immigrants can depress

native Hispanics' income. Indeed, all of the gap-widening effects of region for Hispanics (.0630 log dollars[5]), stem from their living in the West, where the majority settled upon arriving in the U.S.

In contrast to Hispanics, for Asian-Americans the true coefficient effect for regions is reducing their income gap with Whites. The increased income attributable to living in the West (.0170 log dollars) is partly responsible for this effect. Given that the West is also the main gateway for Asian immigrants, and that the majority of Asian-Americans reside there, native-born Asian-Americans seem to be drawing benefits from new immigrants instead of competing against them. That is, native-born Asian-Americans and Asian immigrants seem to be complementary in the labor market. One possible interpretation of this result is that Asian immigrants are much more likely to be highly educated than Hispanic immigrants and, thus, Asian immigrants might have higher incomes (or bring more financial capital from their countries of origin) that allow them to pay for services that native-born Asian-Americans provide. But this speculation seems to be contradicted by the fact that Asian-Americans are spreading into regions outside the West. Why do Asian-Americans move into these other regions when the economic returns on their human capital in the West seem to be rising? This question goes well beyond the scope of this paper, but further studies of the internal migration of Asian-Americans merits consideration.

The true coefficient effects of field of study and level of education are quite large for Asian-Americans, whereas they are relatively small for African-Americans and Hispanics. Among the education components, the true coefficient effects of field of study improve Asian-Americans' income, whereas the effects of level of education influence it negatively. These chaotic patterns seem to be related to the stereotype of Asian-Americans (Wong et al. 1998;

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[5] See Appendix Table 1for a detail decomposition of all variables.

Goyette and Xie 1999). That is, Asian-Americans who obtain higher degrees and major in engineering experience higher increases in income than do Whites, whereas Asian-Americans with terminal BA degrees who study social science experience less of an increase in income than their White counterparts.[6]

In sum, all racial minorities experience stagnant or declining incomes, despite their high investment in human capital. However, the reasons do not seem to be universal; instead, they are race-specific. This paper suggests that to understand the changing racial disparity in contemporary American society, researchers need to incorporate multiple dimensions of education with other factors related to racial stratification, such as historical context, the influx of new immigrants and their regional distribution, and racial stereotypes.

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[6] Asian-Americans are known to be an economically and culturally diverse ethnic group. The relationship of field of study to success in the labor market across Asian ethnic groups is a topic worthy of study.

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Table 1. Change of Mean Log Annual Income by Races

	White	Afro-Am	Hispanic	Asian
1993 Mean Log Annual Income, $\bar{Y}^{93}$	11.0079	10.8036	10.8788	10.9996
Income Gap from White, $\bar{Y}_W^{93} - \bar{Y}_M^{93}$		.2043	.1290	.0083
(Sample Size)	(44,544)	(3,705)	(2,654)	(1,479)
2003 Mean Log Annual Income, $\bar{Y}^{03}$	11.0675	10.8326	10.8572	11.0130
Income Gap from White, , $\bar{Y}_W^{93} - \bar{Y}_M^{93}$		.2349	.2103	.0544
(Sample Size)	(27,703)	(1,987)	(1,812)	(797)
Income Change, $\Delta \bar{Y} = (\bar{Y}^{03} - \bar{Y}^{93})$	.0596	.0290	-.0217	.0134
Change in the Income Gap between 03 & 93, $\Delta \bar{Y}_W - \Delta \bar{Y}_M$		.0306	.0812	.0461

Notes: Weighted by wtsurvy (survey weight).

Table 2. Descriptive Statistics

	1993					2003					Change: 2003-1993				
	Income[1]	White	Afro-Am	Hisp	Asian	Income[1]	White	Afro-Am	Hisp	Asian	Income[1]	White	Afro-Am	Hisp	Asian
Field of Study															
Natural Science	11.002	.123	.101	.105	.146	11.042	.124	.094	.110	.162	.040	.001	-.007	.005	.017
Social Science	10.917	.095	.130	.113	.089	10.949	.097	.131	.106	.086	.031	.002	.001	-.007	-.003
Engineering	11.148	.111	.048	.094	.155	11.226	.101	.058	.099	.144	.078	-.010	.009	.005	-.011
Other S&E	10.964	.020	.026	.018	.014	10.952	.020	.042	.039	.032	-.011	.020	.016	.021	.017
Manag/Market/SZ	11.031	.288	.248	.238	.278	11.135	.288	.268	.277	.253	.104	.000	.020	.039	-.024
Health	11.358	.054	.040	.054	.089	11.457	.061	.044	.069	.147	.098	.007	.004	.015	.057
Education	10.836	.097	.168	.128	.041	10.774	.078	.113	.097	.036	-.062	-.019	-.055	-.031	-.005
Art and Humanity	10.781	.073	.068	.081	.063	10.756	.077	.061	.077	.042	-.025	.005	-.007	-.004	-.020
Social Service	10.617	.031	.038	.031	.020	10.576	.027	.046	.021	.019	-.042	-.003	.008	-.010	.000
Other non S&E	11.044	.110	.131	.138	.107	11.079	.108	.142	.106	.078	.035	-.002	.011	-.032	-.028
(5 High Income)	(11.072)	(.685)	(.569)	(.629)	(.773)	(11.152)	(.681)	(.606)	(.660)	(.784)	(.079)	(-.004)	(.037)	(.031)	(.011)
(Duncan Dissim.)[2]			(.141)	(.087)	(.102)			(.125)	(.036)	(.167)			(-.017)	(-.051)	(.066)
Level of Education															
BA	10.912	.639	.689	.678	.653	10.961	.644	.708	.704	.593	.049	.005	.020	.026	-.060
MA	11.042	.236	.232	.224	.197	11.086	.242	.217	.199	.222	.044	.006	-.015	-.025	.025
PhD	11.204	.047	.029	.027	.037	11.219	.039	.025	.027	.036	.015	-.008	-.004	.001	-.002
Professional	11.438	.078	.050	.071	.113	11.580	.076	.050	.069	.150	.142	-.002	.000	-.002	.037
(Duncan Dissim.)[2]			(.049)	(.039)	(.049)			(.064)	(.060)	(.075)			(.015)	(.021)	(.025)
Age															
25-34	10.772	.223	.216	.285	.311	10.828	.199	.215	.277	.405	.056	-.024	-.001	-.008	.094
35-44	10.999	.366	.397	.397	.389	11.116	.304	.312	.359	.278	.117	-.063	-.085	-.038	-.111
45-54	11.114	.294	.274	.238	.213	11.132	.317	.325	.259	.242	.018	.023	.051	.022	.029
55-64	11.127	.117	.113	.081	.087	11.032	.180	.148	.105	.074	-.095	.064	.035	.024	-.012
(Duncan Dissim.)[2]			(.049)	(.098)	(.119)			(.077)	(.150)	(.236)			(.028)	(.052)	(.116)
Region															
Northeast	11.059	.228	.153	.126	.095	11.119	.221	.150	.108	.168	.060	-.007	-.003	-.008	.073
Midwest	10.932	.256	.194	.088	.063	10.996	.261	.193	.084	.102	.064	.005	-.001	-.004	.039
South	10.977	.308	.505	.361	.092	11.041	.315	.547	.290	.128	.065	.007	.042	-.072	.036
West	11.035	.207	.147	.425	.750	11.044	.203	.109	.518	.603	.010	-.004	-.038	.094	-.147
(Duncan Dissim.)[2]			(.197)	(.270)	(.543)			(.233)	(.316)	(.400)			(.035)	(.046)	(-.143)
Family Background															
Mother Edu: <HSG	10.992	.793	.834	.886	.814	11.040	.774	.812	.843	.748	.048	-.019	-.022	-.043	-.066
BA+	11.012	.207	.166	.114	.186	11.072	.226	.188	.157	.252	.059	.019	.022	.043	.066
Father Edu: <HSG	10.987	.681	.865	.813	.733	11.003	.601	.797	.741	.501	.016	-.080	-.068	-.072	-.232
BA+	11.018	.319	.135	.187	.267	11.118	.399	.203	.259	.499	.100	.080	.068	.072	.232

Notes: Numbers in the table indicate proportion of workers in each race, unless specified otherwise. 1. Log annualized income; 2. Duncan dissimilarity index comparing to the distribution of White.

Table 3. Esmates of Regression Models and Normalized Coefficients

	Estimated Coefficient				Normalized Coefficient			
I. Year 1993	White	Afro-Am	Hispanic	Asian	White	Afro-Am	Hispanic	Asian
Field of Study: Natural Sci (ref)					.068	.121	.094	.088
Social Science	-.071 ***	-.197 ***	-.178 ***	-.106 *	-.003	-.075	-.084	-.018
Engineering	.183 ***	.084 *	.201 ***	.146 ***	.251	.205	.295	.235
Other S&E	.066 ***	-.039	.030	.039	.134	.082	.124	.127
Manag/Market/SZ	.074 ***	-.086 **	.016	-.003	.143	.035	.109	.085
Health	.071 ***	.033	-.048	.072	.139	.155	.046	.160
Education	-.230 ***	-.216 ***	-.229 ***	-.297 ***	-.161	-.095	-.136	-.209
Art and Humanity	-.210 ***	-.255 ***	-.186 ***	-.215 ***	-.142	-.134	-.093	-.127
Social Service	-.480 ***	-.388 ***	-.449 ***	-.365 ***	-.412	-.267	-.355	-.276
Other non S&E	-.086 ***	-.148 ***	-.093 *	-.153 **	-.018	-.027	.000	-.065
Level of Edu: BA (ref)					-.224	-.269	-.253	-.178
MA	.130 ***	.176 ***	.142 ***	.128 ***	-.093	-.093	-.111	-.049
PhD	.258 ***	.412 ***	.354 ***	.182 **	.034	.143	.100	.004
Professional	.507 ***	.487 ***	.518 ***	.401 ***	.283	.219	.264	.223
Age: 25-34 (ref)					-.236	-.200	-.211	-.231
35-44	.242 ***	.193 ***	.224 ***	.239 ***	.006	-.007	.013	.008
45-54	.354 ***	.302 ***	.303 ***	.341 ***	.118	.102	.093	.110
55-64	.347 ***	.305 ***	.315 ***	.344 ***	.111	.105	.104	.113
Region: Northeast (ref)					.061	.066	.053	.007
Midwest	-.116 ***	-.103 ***	-.084 *	-.021	-.055	-.036	-.031	-.014
South	-.086 ***	-.180 ***	-.111 ***	-.022	-.026	-.114	-.058	-.015
West	-.041 ***	.017	-.016	.015	.020	.084	.037	.022
Mother's Edu: <SC (ref)					-.006	.005	.000	.002
BA+	.012	-.009	.000	-.005	.006	-.005	.000	-.002
Father's Edu: <SC (ref)					-.016	-.032	-.008	-.023
BA+	.032 ***	.065 **	.016	.047	.016	.032	.008	.023
Intercept	10.766 ***	10.765 ***	10.736 ***	10.738 ***	11.118	11.073	11.062	11.072
Adjusted *R*-squared	.2131	.2203	.2106	.2275				
II. Year 2003								
Field of Study: Natural Sci (ref)					.094	.066	.133	.117
Social Science	-.067 ***	-.078	-.077	-.508 ***	.028	-.012	.056	-.391
Engineering	.199 ***	.314 ***	.241 ***	.145	.293	.380	.374	.262
Other S&E	-.056 *	-.071	-.156	-.046	.038	-.005	-.023	.071
Manag/Market/SZ	.119 ***	-.012	-.010	-.066	.213	.054	.122	.051
Health	.108 ***	.058	-.095	.054	.203	.124	.037	.171
Education	-.298 ***	-.224 ***	-.292 ***	-.342 *	-.203	-.158	-.160	-.225
Art and Humanity	-.262 ***	-.143 *	-.274 ***	-.233	-.167	-.076	-.142	-.116
Social Service	-.545 ***	-.340 ***	-.530 ***	-.219	-.450	-.274	-.398	-.102
Other non S&E	-.141 ***	-.166 **	-.132 *	.046	-.047	-.099	.000	.163
Level of Edu: BA (ref)					-.258	-.301	-.272	-.177
MA	.130 ***	.247 ***	.151 ***	.194 **	-.128	-.054	-.121	.016
PhD	.279 ***	.396 ***	.285 **	.283 *	.021	.095	.013	.105
Professional	.623 ***	.563 ***	.651 ***	.232 *	.365	.261	.379	.055
Age: 25-34 (ref)					-.188	-.151	-.190	-.246
35-44	.261 ***	.244 ***	.288 ***	.224 ***	.073	.094	.098	-.022
45-54	.302 ***	.201 ***	.223 ***	.399 ***	.113	.051	.033	.153
55-64	.190 ***	.157 **	.250 ***	.361 ***	.002	.006	.060	.115
Region: Northeast (ref)					.066	.081	.104	-.061
Midwest	-.122 ***	-.151 **	-.106	.006	-.056	-.070	-.003	-.055
South	-.082 ***	-.151 ***	-.042	.129	-.017	-.070	.061	.068
West	-.058 ***	-.023	-.266 ***	.109	.007	.058	-.162	.048
Mother's Edu: <SC (ref)					-.002	-.046	-.003	-.014
BA+	.005	.092 *	.007	.029	.002	.046	.003	.014
Father's Edu: <SC (ref)					-.040	-.008	-.013	-.036
BA+	.079 ***	.017	.025	.071	.040	.008	.013	.036
Intercept	10.827 ***	10.739 ***	10.813 ***	10.670 ***	11.155	11.098	11.054	11.087
Adjusted *R*-squared	.1472	.1150	.1685	.1328				

* < -.05; ** <.01; *** <.001

Table 4. Decomposition of Cross-sectional Annual Income Differences between White and Racial Minorities.

	White - African American $[Y_{W,93}-Y_{M,93} = .204]$ $[Y_{W,03}-Y_{M,03} = .235]$				White - Hispanic $[Y_{W,93}-Y_{M,93} = .129]$ $[Y_{W,03}-Y_{M,03} = .210]$				White - Asian $[Y_{W,93}-Y_{M,93} = .008]$ $[Y_{W,03}-Y_{M,03} = .054]$			
	Intercept Effect (B1)	Coefficient Effect (B2)	Endowment Effect (B3)	Total	Intercept Effect (B1)	Coefficient Effect (B2)	Endowment Effect (B3)	Total	Intercept Effect (B1)	Coefficient Effect (B2)	Endowment Effect (B3)	Total
I. Year 1993												
a. Intercept	.045			.045	.057			.057	.047			.047
b. Fields of Study		.022	.034	.056		.004	.019	.024		.020	-.031	-.012
c. Levels of Education		.030	.020	.050		.023	.011	.034		-.032	-.009	-.041
(b+c)		(.052)	(.055)	(.106)		(.027)	(.031)	(.058)		(-.012)	(-.040)	(-.053)
d. Age		.003	.001	.004		-.002	.023	.022		.000	.033	.033
e. Region		.019	.019	.038		.003	-.005	-.002		-.001	-.018	-.019
f. Parents' Education		.002	.009	.011		-.008	.004	-.005		-.002	.002	.000
Total	.045	.076	.083	.204	.057	.020	.052	.129	.047	-.015	-.023	.008
II. Year 2003												
a. Intercept	.058			.058	.101			.101	.068			.068
b. Fields of Study		.040	.036	.076		.011	.004	.015		.056	-.044	.012
c. Levels of Education		.017	.025	.041		.007	.013	.020		-.052	-.028	-.079
(b+c)		(.057)	(.060)	(.117)		(.018)	(.017)	(.035)		(.004)	(-.071)	(-.067)
d. Age		.005	.001	.007		.007	.016	.024		.020	.062	.081
e. Region		.015	.014	.029		.022	.029	.051		-.011	-.015	-.026
f. Parents' Education		.014	.011	.024		-.008	.007	-.001		.006	-.008	-.002
Total	.058	.090	.087	.235	.101	.039	.070	.210	.068	.019	-.032	.054

Note: The unit for numbers in Table is log annual income-.

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Table 5. Decomposition of Log Annual Income Growth Differences between White and Racial Minorities

	Intercept Effect	True Coefficient Effect	Residual Coefficient Effect	True Endowment Effect	Residual Endowment Effect	Total
	(C1)	(C2)	(C3)	(C4)	(C5)	
I. White-African American: $[(Y_{W,03}-Y_{W,93})-(Y_{M,03}-Y_{M,93})] = .0306]$						
a. Intercept	.013					.013
b. Fields of Study		.014	.004	-.009	.010	.020
c. Levels of Education		-.014	.001	.001	.003	-.009
(b+c)		(-.001)	(.006)	(-.008)	(.013)	(.011)
d. Age		.000	.002	.004	-.004	.003
e. Region		-.007	.003	.003	-.008	-.009
f. Parents' Education		.011	.000	.001	.002	.013
Total	.013	.003	.011	.000	.004	.031
II. White-Hispanic: $[(Y_{W,03}-Y_{W,93})-(Y_{M,03}-Y_{M,93})] = .0812]$						
a. Intercept	.045					.045
b. Fields of Study		.002	.005	-.018	.002	-.009
c. Levels of Education		-.016	.000	.002	.001	-.014
(b+c)		(-.015)	(.006)	(-.016)	(.003)	(-.023)
d. Age		.008	.001	.005	-.012	.002
e. Region		.015	.004	.002	.033	.054
f. Parents' Education		-.004	.003	.000	.004	.004
Total	.045	.005	.014	-.009	.027	.081
III. White-Asian American: $[(Y_{W,03}-Y_{W,93})-(Y_{M,03}-Y_{M,93})] = .0461]$						
a. Intercept	.022					.022
b. Fields of Study		.036	.000	-.007	-.005	.024
c. Levels of Education		-.023	.004	-.022	.003	-.038
(b+c)		(.013)	(.003)	(-.028)	(-.003)	(-.015)
d. Age		.025	-.005	.033	-.005	.048
e. Region		-.013	.003	.003	.000	-.007
f. Parents' Education		.008	-.001	-.009	-.001	-.002
Total	.022	.033	.001	-.001	-.008	.046

Note: The unit for numbers in Table is log annual income-.

Appendix Table 1.

| | I. Year 1993 | | | | | | | | | II. Year 2003 | | | | | | | | |
| | White-Afro Am | | | White-Hispanic | | | White-Asian | | | White-Afro Am | | | White-Hispanic | | | White-Asian | | |
	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3
Intercept (B1)	.0449			.0565			.0465			.0575			.1012			.0682		
Major: Natural Sci		-.0059	.0021		-.0029	.0014		-.0027	-.0018		.0030	.0024		-.0045	.0015		-.0032	-.0040
Social Science		.0082	.0014		.0085	.0008		.0014	-.0001		.0045	-.0003		-.0029	-.0004		.0384	-.0020
Engineering		.0037	.0143		-.0045	.0047		.0022	-.0106		-.0069	.0145		-.0081	.0007		.0038	-.0120
Other S&E		.0012	-.0006		.0002	.0002		.0001	.0007		.0017	.0000		.0024	.0000		-.0012	.0004
Manag/Market/SZ		.0289	.0035		.0087	.0063		.0163	.0012		.0441	.0027		.0256	.0019		.0439	.0046
Health		-.0007	.0019		.0050	.0000		-.0015	-.0053		.0041	.0027		.0107	-.0009		.0033	-.0160
Education		-.0088	.0091		-.0029	.0046		.0033	-.0104		-.0044	.0063		-.0038	.0034		.0013	-.0090
Art and Humanity		-.0006	-.0006		-.0038	.0010		-.0010	-.0013		-.0063	-.0019		-.0020	.0000		-.0031	-.0049
Social Service		-.0050	.0026		-.0018	.0002		-.0034	-.0038		-.0065	.0069		-.0013	-.0026		-.0081	-.0023
Other non S&E		.0011	.0005		-.0022	.0002		.0051	-.0001		.0066	.0025		-.0050	.0000		-.0195	.0017
Level of Edu: BA		.0300	.0122		.0196	.0092		-.0296	.0027		.0295	.0180		.0092	.0159		-.0499	-.0111
MA		-.0002	-.0003		.0041	-.0012		-.0095	-.0028		-.0169	-.0023		-.0015	-.0052		-.0335	-.0011
PhD		-.0041	.0016		-.0024	.0014		.0013	.0002		-.0024	.0008		.0003	.0002		-.0032	.0002
Professional		.0041	.0070		.0014	.0018		.0057	-.0090		.0065	.0080		-.0011	.0024		.0349	-.0156
Age: 25+34		-.0079	-.0015		-.0065	.0138		-.0014	.0206		-.0078	.0026		.0005	.0147		.0174	.0448
35+44		.0053	.0000		-.0027	-.0003		-.0006	-.0002		-.0064	-.0007		-.0082	-.0047		.0277	.0006
45+54		.0045	.0023		.0068	.0060		.0021	.0092		.0201	-.0006		.0232	.0042		-.0112	.0100
55+64		.0007	.0003		.0007	.0039		-.0002	.0034		-.0007	.0001		-.0082	.0023		-.0144	.0062
Region: Northeast		-.0011	.0048		.0015	.0058		.0087	.0045		-.0029	.0052		-.0063	.0096		.0246	.0001
Midwest		-.0043	-.0028		-.0042	-.0073		-.0066	-.0067		.0031	-.0043		-.0092	-.0052		-.0002	-.0089
South		.0359	.0138		.0109	.0022		-.0021	-.0044		.0229	.0101		-.0236	.0006		-.0188	.0048
West		-.0112	.0031		-.0053	-.0062		-.0008	-.0114		-.0080	.0031		.0612	.0244		-.0162	-.0110
Mother's Edu: <SC (ref)		-.0085	.0000		-.0050	.0003		-.0065	.0000		.0347	.0009		.0008	.0002		.0091	-.0002
BA+		.0020	.0000		.0010	.0003		.0016	.0000		-.0091	.0009		-.0002	.0002		-.0028	-.0002
Father's Edu: <SC (ref)		.0127	.0045		-.0060	.0016		.0051	.0010		-.0218	.0047		-.0180	.0037		-.0021	-.0038
BA+		-.0037	.0045		.0020	.0016		-.0021	.0010		.0094	.0047		.0088	.0037		.0017	-.0038
Total	.0449	.0760	.0834	.0565	.0203	.0522	.0465	-.0150	-.0232	.0575	.0903	.0870	.1012	.0388	.0703	.0682	.0188	-.0325

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Appendix Table 2.

	White-Afro Am					White-Hispanic					White-Asian				
	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5
Intercept (B1)	.0127					.0446					.0216				
Major: Natural Sci		.0089	.0000	.0007	-.0004		-.0015	-.0001	-.0004	.0005		-.0004	-.0002	-.0015	-.0008
Social Science		-.0037	.0001	.0000	-.0016		-.0112	-.0001	.0000	-.0012		.0371	.0000	-.0005	-.0014
Engineering		-.0106	.0000	-.0056	.0057		-.0038	.0002	-.0046	.0006		.0018	-.0002	.0001	-.0015
Other S&E		-.0003	.0008	.0002	.0004		.0015	.0007	-.0001	-.0001		-.0011	-.0002	.0002	-.0005
Manag/Market/SZ		.0138	.0013	-.0022	.0013		.0156	.0012	-.0057	.0013		.0289	-.0013	.0030	.0004
Health		.0047	.0002	.0005	.0002		.0042	.0014	-.0008	-.0001		.0046	.0002	-.0085	-.0023
Education		.0024	.0021	-.0057	.0028		-.0018	.0009	-.0020	.0008		-.0016	-.0004	.0028	-.0014
Art and Humanity		-.0058	.0001	-.0015	.0002		.0018	.0000	-.0012	.0002		-.0023	.0003	-.0035	-.0002
Social Service		-.0011	-.0004	.0041	.0003		.0001	.0004	-.0028	-.0001		-.0051	.0005	.0009	.0007
Other non S&E		.0053	.0001	.0007	.0014		-.0034	.0006	-.0005	.0002		-.0258	.0012	.0002	.0016
Level of Edu: BA		-.0010	.0005	.0039	.0019		-.0107	.0003	.0054	.0013		-.0221	.0018	-.0136	-.0003
MA		-.0169	.0002	-.0019	.0000		-.0055	-.0001	-.0034	-.0006		-.0225	-.0014	.0012	.0005
PhD		.0012	.0005	-.0003	-.0005		.0026	.0001	-.0004	-.0008		-.0045	.0001	-.0003	.0003
Professional		.0025	-.0001	-.0006	.0017		-.0025	.0000	-.0001	.0006		.0260	.0032	-.0090	.0024
Age: 25+34		-.0004	.0005	.0044	-.0002		.0067	.0002	.0033	-.0024		.0179	.0009	.0265	-.0024
35+44		-.0119	.0003	.0009	-.0016		-.0063	.0008	-.0012	-.0033		.0323	-.0041	.0008	.0000
45+54		.0142	.0015	-.0027	-.0002		.0153	.0012	.0001	-.0018		-.0129	-.0004	-.0007	.0015
55+64		-.0015	.0001	.0016	-.0018		-.0078	-.0011	.0027	-.0043		-.0127	-.0015	.0065	-.0037
Region: Northeast		-.0019	.0001	-.0003	.0007		-.0079	.0002	.0008	.0030		.0130	.0030	-.0015	-.0030
Midwest		.0074	.0000	-.0003	-.0011		-.0050	.0000	-.0003	.0024		.0069	-.0005	.0015	-.0037
South		-.0147	.0017	.0020	-.0057		-.0353	.0007	-.0008	-.0009		-.0157	-.0010	-.0001	.0093
West		.0021	.0012	.0014	-.0015		.0630	.0034	.0024	.0283		-.0170	.0016	.0035	-.0030
Mother's Edu: <SC		.0436	-.0003	.0000	.0009		.0057	.0001	-.0001	.0000		.0156	-.0001	-.0002	.0000
BA+		-.0107	-.0003	.0000	.0009		-.0012	.0001	-.0001	.0000		-.0043	-.0001	-.0002	.0000
Father's Edu: <SC		-.0350	.0005	.0003	-.0001		-.0133	.0013	.0002	.0019		-.0070	-.0003	-.0043	-.0004
BA+		.0126	.0005	.0003	-.0001		.0055	.0013	.0002	.0019		.0041	-.0003	-.0043	-.0004
Total	.0127	.0032	.0112	-.0003	.0038	.0446	.0047	.0137	-.0092	.0273	.0216	.0331	.0007	-.0009	-.0084