

Dissertation Awards

1997

An Empirical Analysis of Black Economic Progress
Over Time: Dissertation Summary

Kenneth Y. Chay
Princeton University

An Empirical Analysis of Black Economic Progress over Time

Kenneth Young Chay

Although there is a consensus that there has been a dramatic improvement in the economic position of black Americans since the dismal prognosis of Gunnar Myrdal in *An American Dilemma* 50 years ago, there is little consensus on the magnitude of these gains, their underlying causes, and whether racial parity has been reached. My dissertation empirically examines the evolution of the economic status of blacks in the U.S. labor market over the last 40 years.

I use three different strategies to identify and estimate shifts in the economic status of African Americans. In Chapter 1, I use a treatment-and-control group methodology to evaluate the effects of the 1972 Equal Employment Opportunity Act (EEOA). In particular, the 1972 EEOA, in conjunction with preexisting state fair employment practice laws, provides a “natural experiment” in which differences across industries and states in treatment status are used to identify the impact of civil rights policy. In Chapter 2, I reevaluate the impact of Title VII of the Civil Rights Act of 1964 using a unique data source which contains longitudinal information on individual earnings. An evaluation strategy is proposed which uses the longitudinal structure of the earnings data to control for other factors unrelated to Title VII which also influence relative earnings. Additionally, the estimation procedures account for the pervasive censoring in the earnings data.

In Chapter 3, I use a model of unobservable skill to assess the implications of growing wage dispersion on estimated changes in the college premium and black/white relative wages in the 1980s. The key to the analysis is the finding that one can use across-group variation in within-group wage variances from multiple periods to identify and estimate a relatively unrestricted error-components model of wages which nests competing explanations for observed changes in relative wages. Interestingly, the identification strategy does not require panel data, but rather a series of independent cross-sectional samples is sufficient for implementing the econometric model.

CHAPTER 1

Over two decades of research on Title VII of the Civil Rights Act of 1964 and Executive Order 11246, which followed it in September 1965, have failed to reach a consensus on the effectiveness of these laws. Two problems confront any analyses of civil rights policies. On one hand, the timing of the legislation (in the mid 1960s) corresponds with the timing of many other significant changes in the U.S. labor market. On the other hand, the nature of these laws, and in particular their nearly universal coverage, makes it difficult to control for changes that would have occurred even in the absence of the legislation.

This paper presents new evidence on the effectiveness of federal antidiscrimination policy, focusing on an important but under-studied amendment of Title VII of the Civil Rights Act. The Equal Employment Opportunity Act (EEOA) of 1972 expanded civil rights coverage of Title VII statutes to employers with 15–24 employees, while leaving unaffected the civil rights protection for employees of larger establishments. In conjunction with already existing state fair employment practice (FEP) laws, which varied in employer coverage, the EEOA set up a useful “natural experiment” for measuring the impact of civil rights law. The effect of the legislation can be estimated by comparing changes in outcomes at newly covered and previously covered (by Title VII or FEP laws) employers with respect to the timing of the amendment. The 1972 amendment should have most directly affected the relative status of blacks employed in the newly covered small establishments in states where small employers were not covered by FEP laws. Many of the problems in the existing literature on the 1964 Civil Rights Act can be avoided by this simple treatment and control group evaluation methodology.

Kenneth Y. Chay received his Ph.D. from Princeton University. He is currently an assistant professor of economics at the University of California, Berkeley. Mr. Chay’s dissertation advisor was David Card.

In the absence of a detailed establishment-level data set that would permit precise comparisons of labor market outcomes by employer size, the strategy in this paper is to use individual micro-data aggregated into region and industry cells. Specifically, variation across industries in the fraction of employees in small establishments and across states in the employer coverage of FEP laws is used to define treatment and control groups. Industries are aggregated into three groups with similar fractions of workers in small establishments in each group, and states are aggregated into the South, where FEP laws were virtually non-existent, and the non-South, where most states already had FEP laws covering small employers. Using data from March and October Current Population Surveys (CPS) from 1968-80, movements in three measures of racial inequality (the share of blacks in industry employment, black/white relative annual earnings, and black/white relative occupational status) in each cell are analyzed to measure the impact of the 1972 EEOA on working-age black men employed in the private sector. Comparisons are made between the relative gains experienced by blacks employed in the most affected industry group in the South (the treatment group) and relative gains for blacks in the other five cells (the control groups).

Controlling for a wide set of factors, including permanent differences across regions and industry groups, cyclical effects, the changing relative skills of black workers, and region- and industry-specific trends, I find that black men in the high-impact industries in the South achieved large gains in employment share and relative earnings and more modest gains in relative occupational status after 1972. For blacks employed in the other cells, there are either no improvements or improvements which appear to be the continuation of trends that began some time before 1972. Most of the gains were concentrated among relatively unskilled black men employed in the construction and service sectors. It appears that the relative demand for less-skilled blacks increased significantly among newly covered employers after the implementation of the 1972 coverage amendment. The location and timing of these relative gains provide evidence that civil rights policies had a positive impact on the labor market status of African Americans.

CHAPTER 2

Time-series studies assessing the effects of Title VII (and Executive Order 11246) rely on comparisons of pre-policy (before 1965) and post-policy (after 1965) trends in black/white relative earnings calculated from published aggregate tabulations. Because the

legislation specifies nearly universal coverage and its timing corresponds with the timing of many other significant changes in the U.S. labor market (e.g., the War on Poverty and changes in the relative skills of black workers), it is difficult to control for changes in relative earnings that would have occurred even in the absence of the legislation. As a result, with aggregate time-series data it is nearly impossible to disentangle the actual effect of the law from other factors unrelated to Title VII which also influence relative earnings.

This paper uses a unique micro data base to reevaluate the impact of federal antidiscrimination policy on black economic progress in the 1960s and early 1970s. A data source is constructed that links the 1973 and 1978 March Current Population Surveys (CPS) to employer-reported longitudinal Social Security Administration earnings records from 1957 to 1975. With disaggregate, detailed longitudinal data, I can use "non-experimental" statistical methods to account for competing explanations for observed changes in relative earnings. In particular, I introduce and implement a new evaluation strategy for obtaining structural estimates of the impact of Title VII which controls for the effects of both the observed (e.g., education) and unobserved (e.g., school quality and family background) skill gaps between black and white men and changes in the return to these skills on relative earnings. Thus, this study exploits the longitudinal structure of earnings to identify earnings convergence after 1965 attributable to changes in labor market discrimination, presumably the result of the government intervention.

Although the administrative payroll tax records are likely to be an accurate measure of true earnings, many records are censored at zero and at the Social Security tax ceiling. The censoring at zero does not appear to be a serious issue. The censoring at the tax ceiling, however, could be extremely problematic. Because the real value of the taxable maximum changed significantly during the 1960s and early 1970s, estimates of the intervention effects which do not account for the top-coding and changes in it (e.g., least squares estimates) would be seriously biased. As a result, in this study I use both maximum likelihood and quantile-based semiparametric estimation to implement the evaluation strategy and identify the policy effects while explicitly accounting for the nonlinearity in the panel data censored regression model of earnings. If the distribution of the underlying unobserved components of the regression model are correctly specified (e.g., error terms which are identically normally distributed across individuals), then the

maximum likelihood estimator will be consistent and efficient. However, if the unobserved components are non-normal and/or not identically distributed, only the censored regression quantile estimators will provide consistent estimates of the legislation's impact.

Analyzing data on black and white men in three narrowly defined birth cohorts disaggregated by region (South and non-South), I find that blacks in the two youngest birth cohorts in the South achieved large gains in relative earnings after 1965 even after controlling for black/white skill differences and changes in the return to skill. In addition, there were no post-policy improvements in the economic status of black men in the oldest birth cohort in the South, while in the non-South, only black men in the youngest birth cohort achieved relative earnings gains after 1965. Although there is evidence that the price of unobserved skill was nonstationary, changes in the skill premium were much too small to have had a significant impact on changes in the black/white earnings gap during the 1960s and early 1970s. I also find no evidence that these results are biased by potentially nonrandom participation in the sector covered by Social Security. The analysis suggests that Title VII legislation led to much of the improvements in the economic status of African Americans from 1965–75.

With respect to estimation methodologies, I find that using the maximum likelihood estimates of the conditional location parameters of the censored regression model provides accurate measures of the impact of the 1964 Act. However, using maximum likelihood estimates of the second moment parameters of the model as an extra source of identification relies heavily on stochastic restrictions on the shape of the error distribution (e.g., joint normality) which do not hold in the data. Quantile estimation of the censored regression model results in estimates of the intervention effects which are very similar to the maximum likelihood estimates, implying that the sources of misspecification in the maximum likelihood approach are fixed over time. Surprisingly, the quantile-based estimates are more precise than the maximum likelihood estimates due to long tails at the low end of the earnings distribution. I conclude that quantile-based semi-parametric methods provide an extremely attractive approach to estimating censored regression models of the log-earnings process.

CHAPTER 3

During the 1980s, wage inequality among men grew along several dimensions in the United States. Most notably, after experiencing a decline in the previous

decade, the measured college/high school wage differential increased substantially during the 1980s. In addition, wage inequality within narrowly defined demographic groups based on education and experience also rose, continuing a trend that began in the early 1970s. Finally, wage convergence between black and white men stagnated in the 1980s after 15 years of significant black economic progress dating back to the mid 1960s. Consequently, a great deal of economic research has focused on proposing and evaluating various explanations for these well-documented empirical facts.

Amidst numerous attempts to identify the driving forces behind these observed changes in relative wages, a debate has arisen concerning their connection. In particular, rising within-group residual wage dispersion may reflect an increase in the return to unobservable "skill." As a result, it is an open question whether the rapid growth in the college/high school wage gap in the 1980s represents an increase in the economic returns to a college education or a rise in the payoff to unmeasured factors which are correlated with, but not the result of, educational attainment (e.g., innate ability or family background influences). Similarly, it is questionable whether the recent slowdown in black/white wage convergence is attributable to an increase in labor market discrimination or a rising premium for such unobserved factors as well as for other difficult-to-measure productivity components (e.g., school "quality").

In this study, we attempt to inform the debate by answering the following questions concerning relative wage changes during the 1980s: how much of the dramatic increase in the college/high school wage differential could be due to a rise in the return to unmeasured "ability" or "skill" rather than to an increase in the true college premium? and, to what extent can the slowdown in black economic progress or the widening black/white wage gap among young workers be explained by a rise in the return to pre-labor market factors correlated with race?

A recent body of empirical work has proposed and used "direct" measures of skill or ability, such as test scores and observable measures of school quality, to control for unobserved heterogeneity biases that may confound estimates of the return to college and the existence of racial wage discrimination. However, due to either the "unspecific" or "too specific" nature of the measure used, the findings of these studies are arguably difficult to interpret. The approach we adopt to answer the above questions, on the other hand, provides a distinct and more general alternative to using these

direct measures. Specifically, in our analysis one component of “skill” is allowed to remain strictly unobservable to the researcher and have an economic payoff which changes over time. More importantly, these changes will have clear implications for the behavior of within-group wage dispersion across groups and over time.

We develop a parsimonious yet general model of the wage process in which it is necessary to identify both 1) the extent of the “unobserved skill” (or omitted-ability) bias at a given point in time and 2) the growth in the unobserved skill premium, in order to identify true changes in the college premium or the residual black/white wage gap. Although one cannot identify the unobserved skill gap from a time-series of conditional means of log-wages, we show that a series of conditional variances of log-wages over time is sufficient to identify changes in the payoff of unmeasured skill. In addition, based on these estimates of the rise in the value of skill, we are able to generate bounds for changes in the college premium and wage discrimination under various assumptions on the magnitude of unobserved skill differences across education and race groups.

Specifically, our study illustrates that it is possible to use across-group variation in within-group wage variances from multiple periods to identify the change in the return to unobservable skill within a relatively unrestrictive error-components model of wages. Our identification strategy accommodates an unobservable component of skill which differs by education group and race and has a non-stationary return while avoiding full specification of the time-series properties or the functional form of the error components. Furthermore, our approach does not require panel data on

individuals. Instead, a series of independent cross-sectional samples is sufficient for implementing our econometric model of unobservable skill and assessing empirically the implications of growing wage dispersion for conventional estimates of changes in the college premium and racial discrimination.

Earnings data for men from the Current Population Survey (CPS) show that there is useful variation in within-group wage variances across narrowly defined demographic groups. This variation across groups and over time allows us to estimate a growth in the return to unobservable skill of about 10–20 percent during the course of the 1980s. In addition, our model provides a relatively accurate description of changes in within-group wage inequality over time.

Even given our largest estimate of the change in the value of unobservable skill and under the assumption that the entire initial education differential is attributable to nonrandom sorting, we find that college-educated workers still gain substantially relative to high school-educated workers in the 1980s after controlling for the effects of the rising skill premium. In particular, the rise in the payoff to unobserved skill can account for at most 30 to 40 percent of the observed rise in the college premium for relatively young workers, leaving a 0.10 to 0.17 log point growth in the true college premium as the lower bound estimate. In addition, we find that an increase in the return to unmeasured skill cannot account for the stagnation of black economic progress during the 1980s, even under the assumption that all of the initial racial difference in earnings results from unmeasured productivity differences. Specifically, young, well-educated black men still experience at least a 0.13 log point decline in wages relative to their white counterparts in the 1980s.