College Premium and Its Impact on Racial and Gender Differentials in Earnings and Future Retirement Income

Educational attainment is a key determinant of labor market outcomes. In particular, college educated workers earn higher wages and receive more generous employee benefits, including retirement plans, than workers without a college degree do. Because lifetime earnings and retirement benefits are key determinants of retirement income, college educated workers end up with higher incomes after they retire as well. But returns to college education—college premium—are not the same for all. They differ by race and gender, making investment in human capital more attractive for some than for others. And these disparities in education premium accumulate over time to generate disparities in retirement income.

These trends are likely to continue in the future. Education premium is expected to remain at its current level or keep growing. Its main driving forces—skilled-biased technological progress, growth in international trade, and diminishing bargaining power of workers—are showing persistence. Race and gender disparities in wages—including returns to education—are also not likely to disappear anytime soon. These disparities interact with employment, marriage patterns, private pension coverage, redistributive effects of Social Security, among other factors, to determine future retirement income of workers currently in the labor force. They also create imbalance in incentives to obtain college education, which can perpetuate gaps in educational attainment.

This study looks at returns to education by race and gender, and their cumulative effect on retirement income. As Paul, Zaw, Hamilton, and Darity (2018) show, research that focuses on only one dimension fails to capture the intersectionality of race and gender that plays an important role in the labor market. This study focuses on college educated workers in four

demographic groups and estimates gains from college diploma in earnings and retirement income for each group. In addition, it estimates how gender and race differentials in wage affect earnings and retirement income of college educated workers. This shows, for each group, losses or gains in earnings and retirement income due to racial and gender disparities.

To estimate the college premium and its racial and gender disparities, I use DYNASIM, Urban Institute's microsimulation model, to simulate earnings, income from private pensions, Social Security benefits, and taxes under the baseline and two counterfactual scenarios. I focus on four demographic groups: black and white women, and black and white men, and analyze their gains from college education and disparities in these gains. The simulations start with a representative sample of the US population in 2007 and run until 2050. The baseline simulation reflects current earnings distribution, including returns to education and prevalent disparities by race and gender. One counterfactual scenario simulates earnings with returns to college set to zero, and the other assumes that race and gender do not play a role in wage. Comparing these scenarios with the baseline allows identification of gains from college education by race and gender, as well as differentials in these gains. An advantage of the simulation approach is that it allows simulation of outcomes for the same person under multiple scenarios. Unlike observational studies, which estimate the treatment effect by comparing the treated with the untreated, simulations allow comparison of an outcome for the same person under the treatment and without it. This avoids confounding effects of unobserved factors.

The within-group effects of college premium are estimated as the difference in a statistic v (the mean or a percentile) of the outcome Y (earnings or retirement income) for college-educated members of group g between the baseline and the no-college-premium scenario:

$$\Delta v_g^{\text{col}} = v\big(Y_{ig} | \, Col_i = 1\big) - v\big(Y'_{ig} | \, Col_i = 1\big)$$

where Y'_{ig} represents the outcome of interest under the no-college-premium scenario, Y_{ig} the outcome under the baseline, and Col_i an indicator variable equal to one if person i graduated from a four-year college.

The effect of the race and gender gap in college premium on earnings and retirement income for group g is estimated as the difference in a statistic v of outcome Y for college-educated members of group g between the baseline and the no-discrimination scenario:

$$\Delta v_g^{\text{dem}} = v\big(Y_{ig}|\ Col_i = 1\big) - v\big(Y''_{ig}|\ Col_i = 1\big)$$

where Y''_{ig} represents the outcome of interest under the no-discrimination scenario.

Earnings are estimated for workers ages 25 to 54 in 2010 and retirement income for people ages 67 to 75 in 2050 regardless of their employment status. Worker's annual earnings are determined by hourly wage and number of hours worked in a year. The retirement income includes Social Security benefits, income from employer-sponsored DB pension plans, earnings, Supplemental Security income (SSI), income from other federal assistance programs, and imputed rent. It also includes annuitized asset income, which was calculated as the annual actuarially fair annuity payment a family would receive if it annuitized 80 percent of its retirement accounts and other financial assets using a 3 percent annual real return. To obtain a value net of taxes and premiums, I subtracted from total income federal and state income taxes; payroll taxes that fund the old age, survivor, and disability insurance (OASDI) program and Medicare's hospital insurance (HI) program; the Medicare surtax on earnings and investment income for high-income people; and premiums for Medicare Parts B and D. A per capita measure was calculated by dividing married people's family income by two.

The results show large disparities in the college premium for earnings across race and gender. The premium is the highest for white women and the lowest for black men, with the

values for black women and white men in between (figure 1). Disparities in returns to college for retirement income are significantly smaller (not included in this abstract). In the middle of the distribution, the returns are similar for all four groups; the returns for black women are highest at the high end and lowest at the low end of the distribution. The study will explore these results further by looking at individual components of retirement income, and comparing outcomes for married and single individuals.

Figure 1 Gains in Earnings due to College Diploma by Race and Gender in 2010
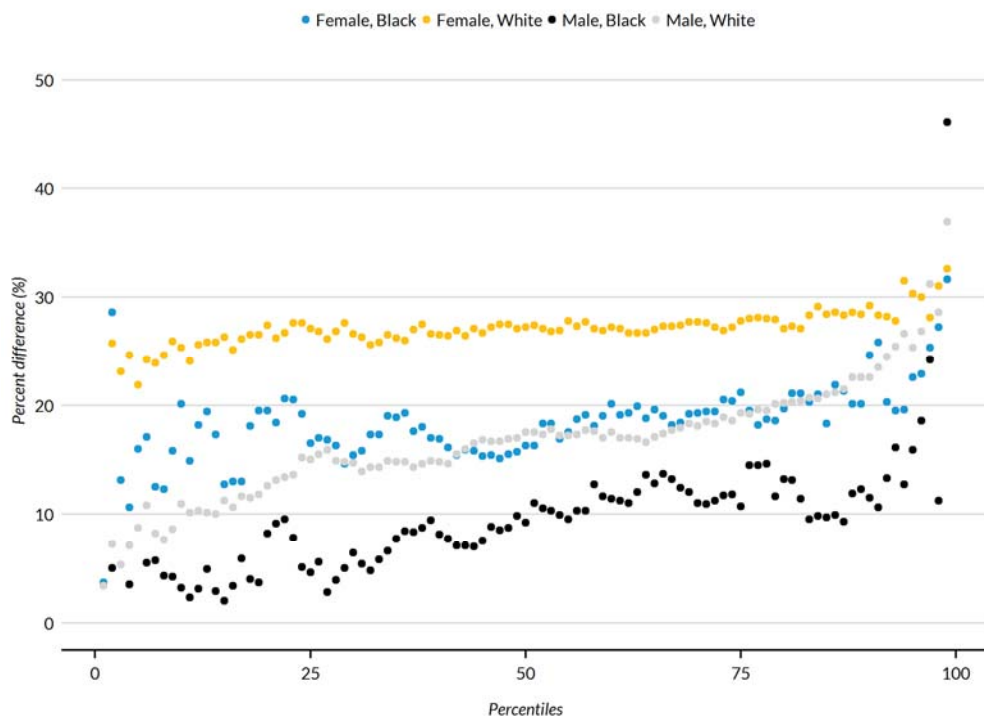
Source: DYNASIM4 ID 958A and 958B
Notes: Percentage difference in earnings by earnings percentile between the baseline and no-college-premium scenarios. College educated workers ages 25 to 54.

Bibliography

Paul, Mark, Khaing Zaw, Darrick Hamilton, and William Jr. Darity. "Returns in the Labor Market: A Nuanced View of Penalties at the Intersection of Race and Gender." Working Paper. Center for Equitable Growth, August 7, 2018.