

Labor Market Discrimination

Introduction

- How differences in the work environment or in the skills of workers generate wage dispersion in competitive labor markets
 - Discrimination occurs when the marketplace takes into account such factors as race and sex when making economic exchanges
 - How economists measure labor market discrimination and discusses the long-run trends in the black-white and male-female wage differentials
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Race and Gender in the Labor Market

- Men earn more than women, and whites usually earn more than nonwhites.
 - Differences in educational attainment between whites and nonwhites account for a portion of the wage differential.
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Gender and Racial Differences in Skills and Labor Market Outcomes, 2004

Sources: The data on educational attainment refer to persons aged 25 and over and are drawn from the table “Educational Attainment in the United States: March 2004,” www.census.gov/population/www/socdemo/education/cps2004.html. The data on labor force participation and unemployment rates refer to persons aged 20 and over and are available online at www.bls.gov/cps/cpsatabs.htm. The data on earnings refers to workers aged 25 and over and are drawn from “Table PINC-03, Educational Attainment—People 25 Years Old and Over, by Total Money Earnings in 2004, Work Experience in 2004, Age, Race, Hispanic Origin and Sex,” www.census.gov/hhes/www/income/dinctabs.html.

	White		Black		Hispanic	
	Male	Female	Male	Female	Male	Female
Percent high school graduate or more	85.3	86.3	80.4	80.8	57.3	59.5
Percent bachelor's degree or more	30.0	26.4	16.6	18.5	11.8	12.3
Labor force participation rate	76.2	59.7	71.3	64.4	84.0	57.4
Unemployment rate	3.8	3.9	9.2	8.5	4.7	6.3
Annual earnings (in \$1,000)	52.0	31.6	35.9	28.1	33.9	24.0
Annual earnings (among workers employed full-time, year-round) (in \$1,000)	58.0	40.0	40.0	33.2	36.6	29.6

The United States

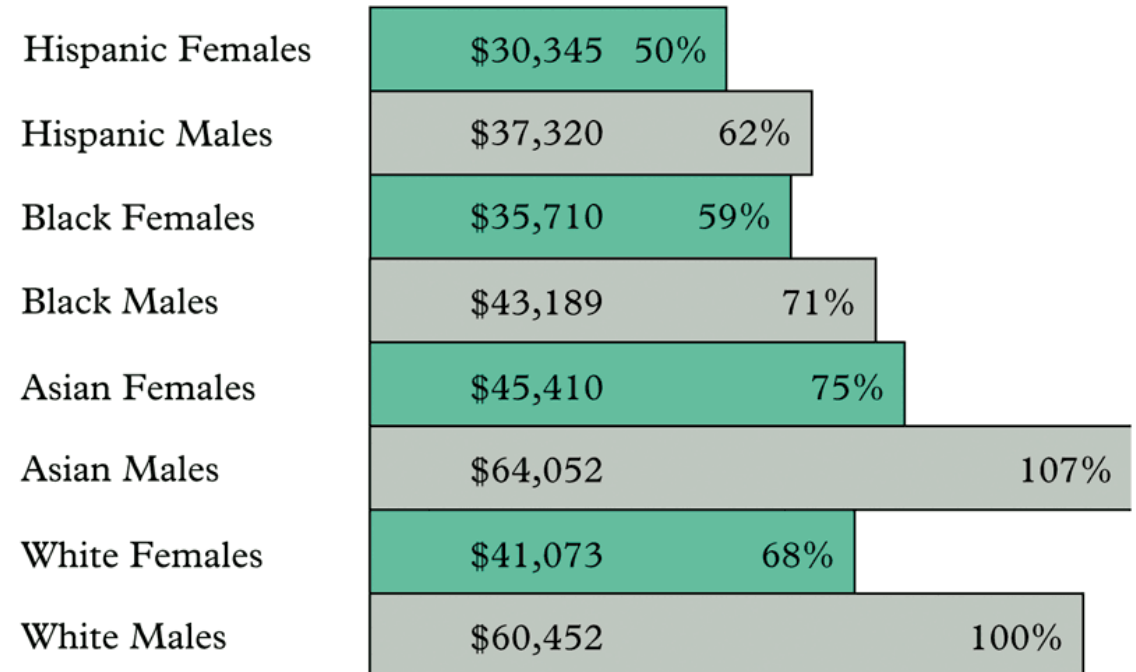
	Year			
	1984	1994	2004	2014 (projected)
White (non-Hispanic)	80.4%	76.7%	70.0%	65.6%
Women (all races)	43.8%	46.0%	46.4%	46.8%
Blacks (both genders)	10.6%	11.1%	11.3%	12.0%
Asians and Native Americans (both genders) ^a	2.7%	4.2%	4.3%	5.1%
Hispanics (all races, both genders)	6.6%	9.1%	13.1%	15.9%

^aIncludes Alaskan Natives and Pacific Islanders.

Source: Mitra Toossi, "Labor Force Projections to 2014: Retiring Boomers," *Monthly Labor Review* 128 (November 2005): 25-44, Table 1.

Mean of Earning

Source: Data in this figure are from U.S. Bureau of the Census, Detailed Income Tabulations from the CPS, 2006 ASEC, Persons, Table PINC-03: “Educational Attainment—People 25 Years Old and Over, by Total Money Earnings in 2005, Work Experience in 2005, Age, Race, Hispanic Origin, and Sex,” at http://pubdb3.census.gov/macro/032006/perinc/new03_000.htm.



Earning ratio

	Percentage Female in Occupation	Female-to-Male Earnings Ratio
<i>High-Paying^a</i>		
Chief executives	24	0.74
Computer software engineers	21	0.81
Lawyers	34	0.77
Pharmacists	48	0.93
<i>Low-Paying^a</i>		
Cashiers	76	0.83
Cooks	36	0.90
Food preparation	56	0.98
Food service attendants and helpers	44	0.89
Sewing machine operators	72	0.95

^a“High-paying” occupations are those in which women earned more than \$1,150 per week in 2005; “low-paying” ones are those in which men earned less than \$400 per week. Occupations in which so few of either gender were employed that earnings data were not published are omitted.

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings* 53 (January 2006), Table 39.

The Discrimination Coefficient

Taste discrimination translates the notion of racial prejudice.

- Racial prejudice causes employers to blindly perceive the costs of hiring blacks as being higher than the true cost.
- Even though it costs w_b dollars to hire one person-hour of black labor, the employer acts as if it costs $w_b(1+d)$ dollars, where $d, d>0$, is the discrimination coefficient.

The Discrimination Coefficient

- If the employer is prejudiced against blacks, the employer gets disutility from hiring black workers.

$$w_B(1 + d)$$

where d is discrimination coefficient and $d > 0$

Suppose that $w_B = \$10$ per hour and that $d = 0.5$

The employer will then act as if hiring a black worker costs \$15 per hour, a 50 percent increase in cost.

This discrimination coefficient d , therefore, gives the percent “mark up” in the cost of hiring a black worker attributable to the employer’s prejudice.

The greater the prejudice, the greater the disutility from hiring blacks, and the greater is the discrimination coefficient d

Nepotism

- An employer's utility adjusted cost of hiring a favored worker equals

$$w_B(1 - n)$$

where the “nepotism coefficient” n is a positive number

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- Employer discrimination
 - Employee discrimination
 - Customer discrimination
 - Discrimination is greater if the minority group is a larger fraction of population
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Employer Discrimination

Suppose there are two types of workers in the labor market: white and black workers

Consider a competitive firm that is deciding how much of these inputs to hire

We assume that black and white workers are perfect substitutes in production

$$q = f(E_W + E_B)$$

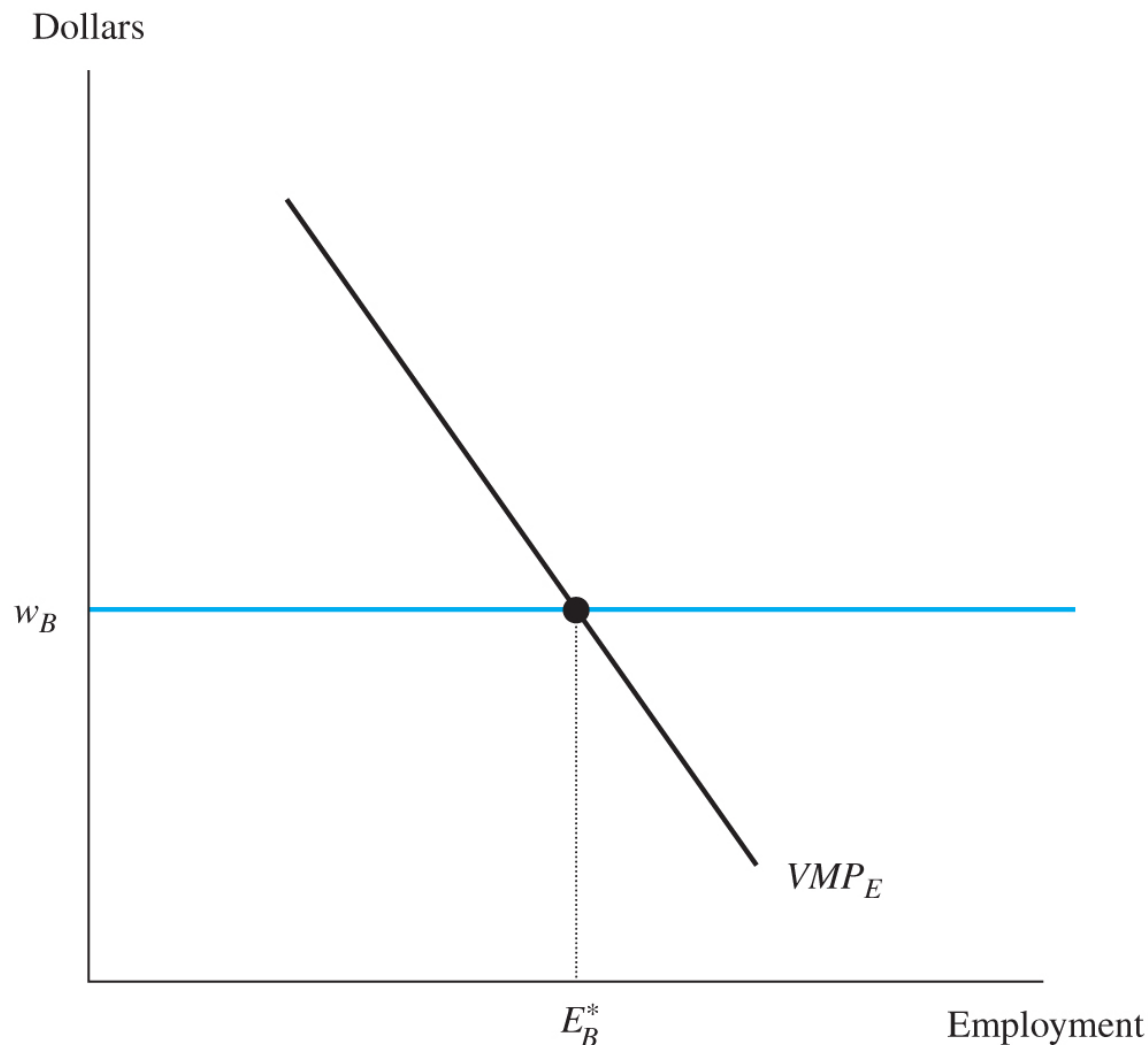
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- Lets suppose that the market-determined wage of black labor is less than the market-determined wage of white labor

$$w_B < w_W$$

- A firm that does not discriminate will hire black workers up to the point where the black wage equals the value of their marginal product

$$w_B < VMP_E$$

The Employment Decision for a Firm That Does Not Discriminate



If the market-determined black wage is less than the white wage, a firm that does not discriminate will hire only blacks. It hires black workers up to the point where the black wage equals the value of marginal product of labor, E_B^* .

Employment in a Discriminatory Firm

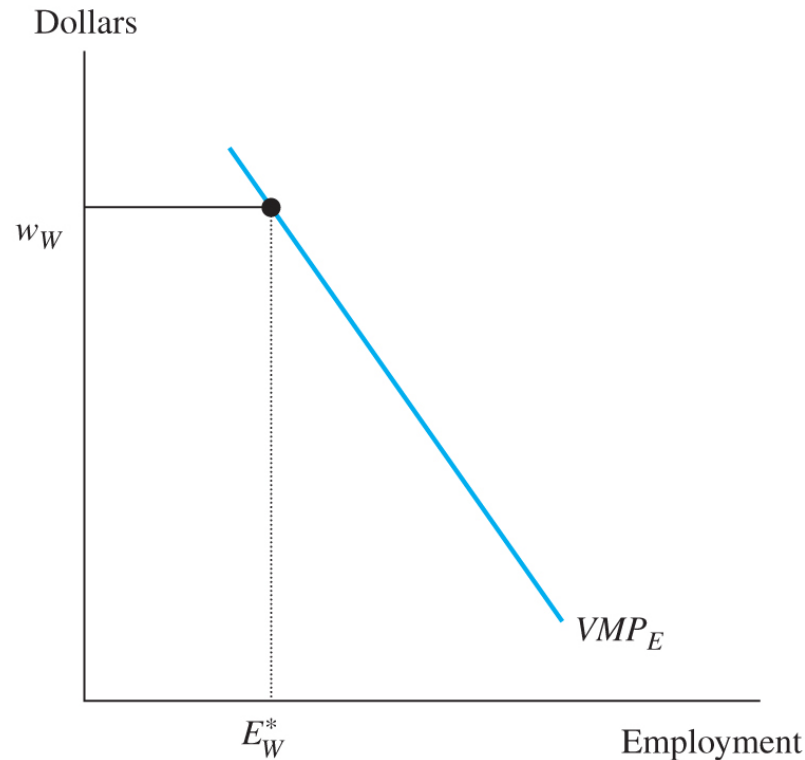
- The hiring decision of a firm that discriminates

Hire only blacks if $w_B(1+d) < w_W$

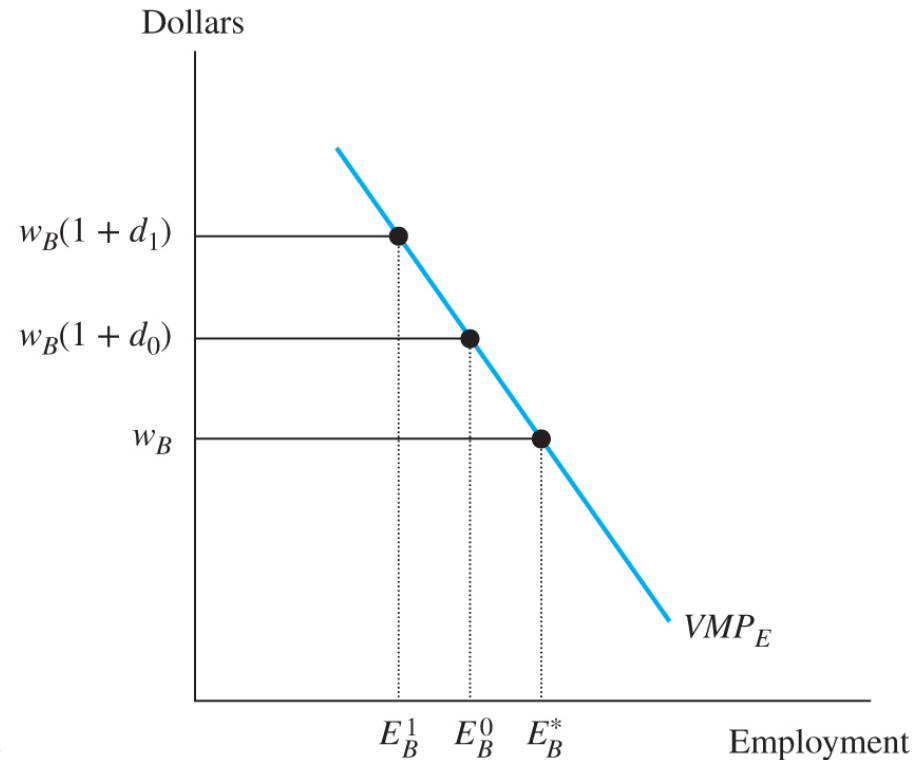
Hire only whites if $w_B(1+d) > w_W$

- As long as black and white workers are perfect substitutes, firms have a segregated workforce

The Employment Decision for a Prejudiced Firm



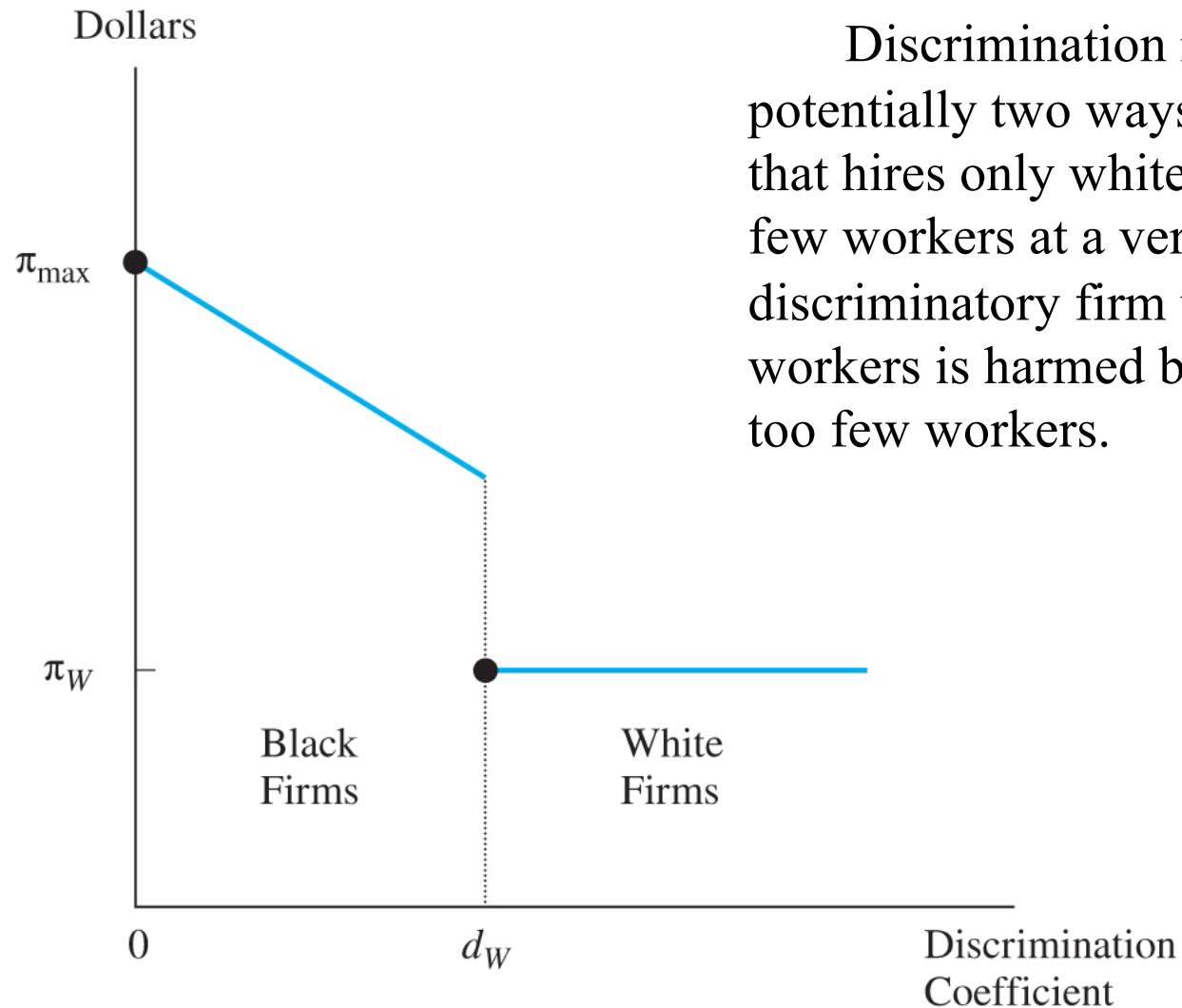
(a) White Firm



(b) Black Firm

Firms that discriminate can be either white firms (if the discrimination coefficient is very high) or black firms (if the discrimination coefficient is relatively low). A white firm hires white workers up to the point where the white wage equals the value of marginal product. A black firm hires black workers up to the point where the utility-adjusted black wage equals the value of marginal product. Firms that discriminate hire fewer workers than firms that do not discriminate.

Profits and Discrimination

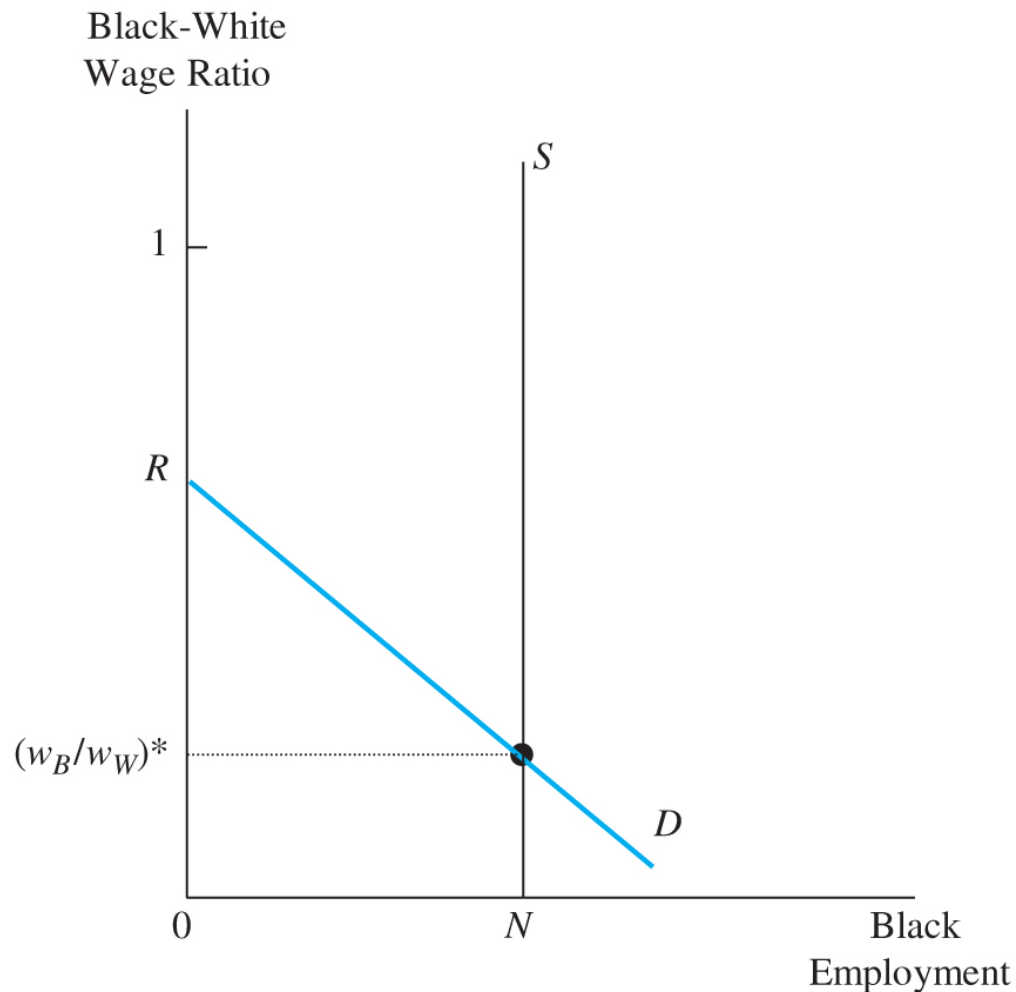


Discrimination reduces profits in potentially two ways. A discriminatory firm that hires only white workers will hire too few workers at a very high wage. Even a discriminatory firm that only hires black workers is harmed by its actions as it hires too few workers.

The Black-White Wage Ratio in the Labor Market

- Employer discrimination generates a wage gap between equally skilled black and white workers.
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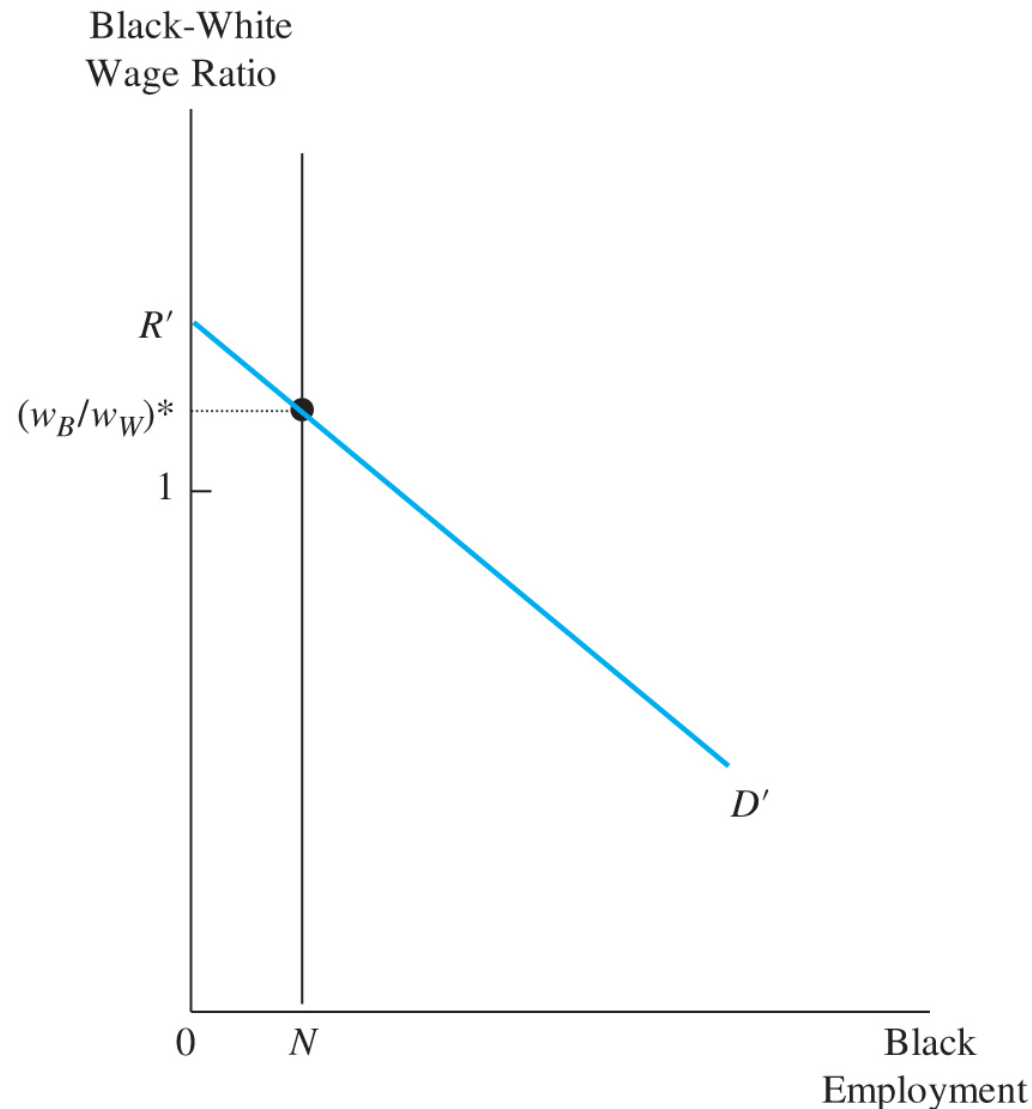
Determination of Black/White Wage Ratio in the Labor Market



If the black-white wage ratio is very high, no firm in the labor market will want to hire blacks. As the black-white wage ratio falls, more and more firms are compensated for their disutility and the demand for black workers rises. The equilibrium black-white wage ratio is given by the intersection of supply and demand, and equals

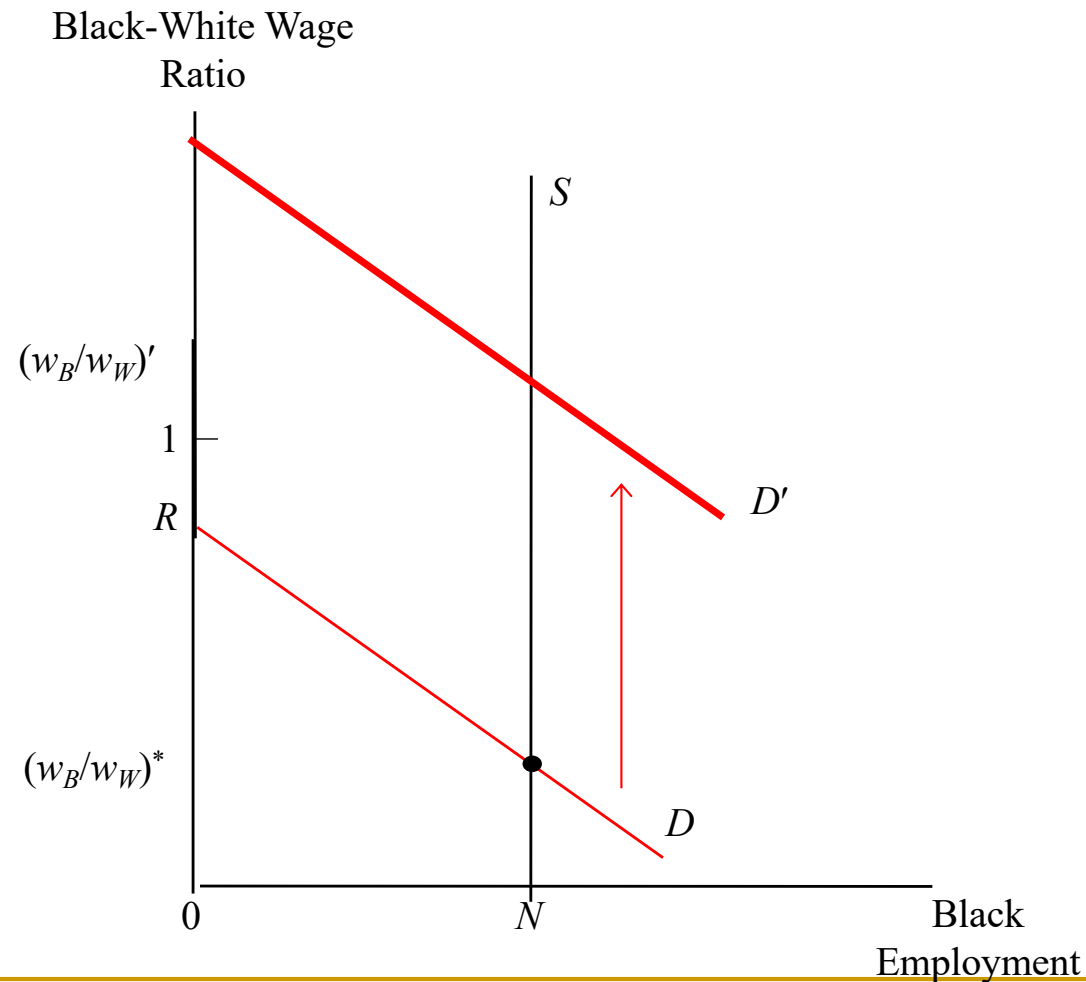
$$(w_B/w_W)^*.$$

Determination of Black/White Wage Ratio in the Labor Market



If some firms prefer to hire blacks, they would be willing to hire blacks even if the black-white wage ratio exceeds 1. If the supply of blacks is sufficiently small, it is then possible for the black-white wage ratio to exceed 1.

Determination of Black/White Wage Ratio in the Labor Market



Labor Market Equilibrium

- If the black-white wage ratio is very high, no firm in the labor market will want to hire blacks
- As the black-white wage ratio falls, more and more firms are compensated for their disutility and the demand for black workers rises
- The equilibrium black-white wage ratio is given by the intersection of supply and demand, and equals $\left(\frac{w_B}{w_W} \right)^*$

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- If some firms prefer to hire blacks, they would be willing to hire blacks even if the black-white wage ratio exceeds 1, shifting the demand curve up to D'
 - If the supply of blacks is sufficiently small, it is then possible for the black-white wage ratio to exceed 1
-

Employee Discrimination

- Employee discrimination does not generate a wage differential between equally skilled black and white workers.

Customer Discrimination

- If customers discriminate, their perceived price of a good is utility-adjusted with a discrimination coefficient.
 - When a firm cannot hide black workers, customer discrimination can have an adverse effect on black wages.
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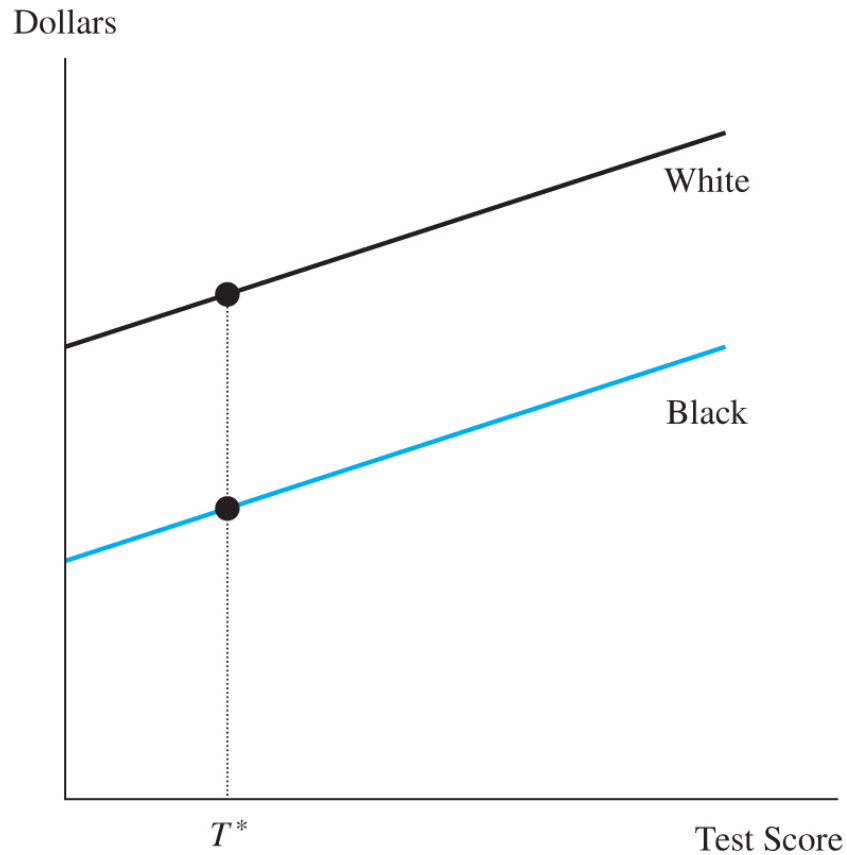
The impact of statistical discrimination wages

The applicant's expected productivity will be a weighted average of the applicant's own test score and of the average test score of the group

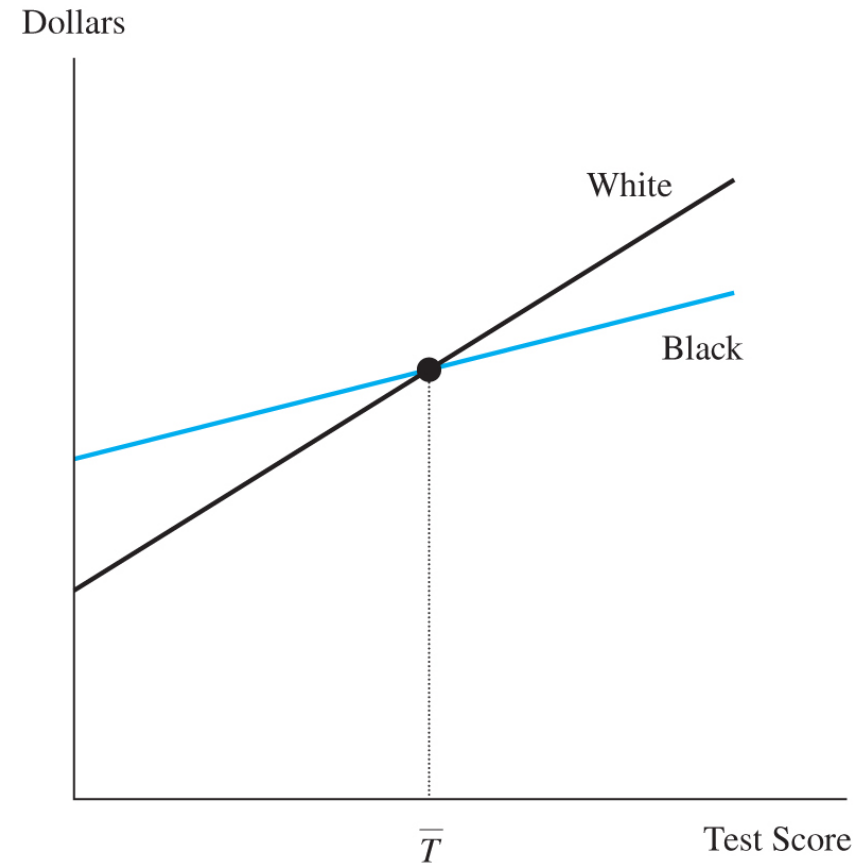
$$w = \alpha T + (1 - \alpha) \bar{T}$$

$$T = \text{test score}$$

The Impact of Statistical Discrimination on Wages



(a) Whites Have a Higher Average Score



(b) Test Is Better Predictor for White Workers

The impact of statistical discrimination on wages

- The worker's wage depends not only on his own test score, but also on the mean test score of workers in his racial group
 - If black workers, on average, score lower than white workers, a white worker who gets T^* points earns more than a black worker with the same score
 - If the test is a better predictor of productivity for white workers, high-scoring whites earn more than high-scoring blacks, and low-scoring whites earn less than low-scoring blacks
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Measuring Discrimination

- One possible measure of discrimination is the difference in mean wages.
 - A better measure would compare the wages of equally skilled workers.
 - Oaxaca decomposition: a technique that decomposes the raw wage differential into a portion related to a difference in skills and a portion attributable to labor market discrimination.
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Measuring Discrimination

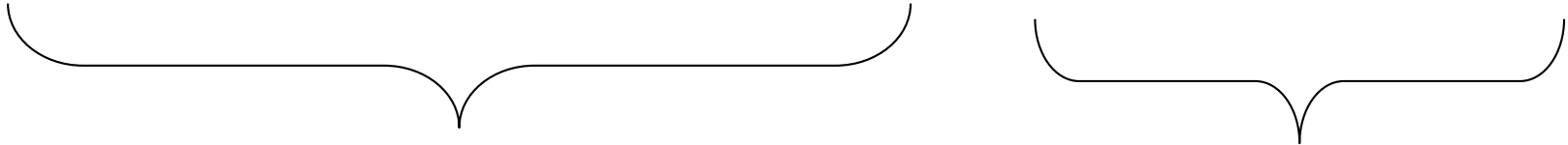
$$\Delta \bar{w} = \bar{w}_M - \bar{w}_F$$

$$w_M = \alpha_M + \beta_M S_M$$

$$w_F = \alpha_F + \beta_F S_F$$

$$\Delta \bar{w} = \bar{w}_M - \bar{w}_F = \alpha_M + \beta_M S_M - \alpha_F - \beta_F S_F$$

The Oaxaca Decomposition

$$\Delta \bar{w} = (\alpha_M - \alpha_F) + (\beta_M - \beta_F) \bar{S}_F + \beta_M (\bar{S}_M - \bar{S}_F)$$


Differential due to discrimination

Differential due to differential in skill

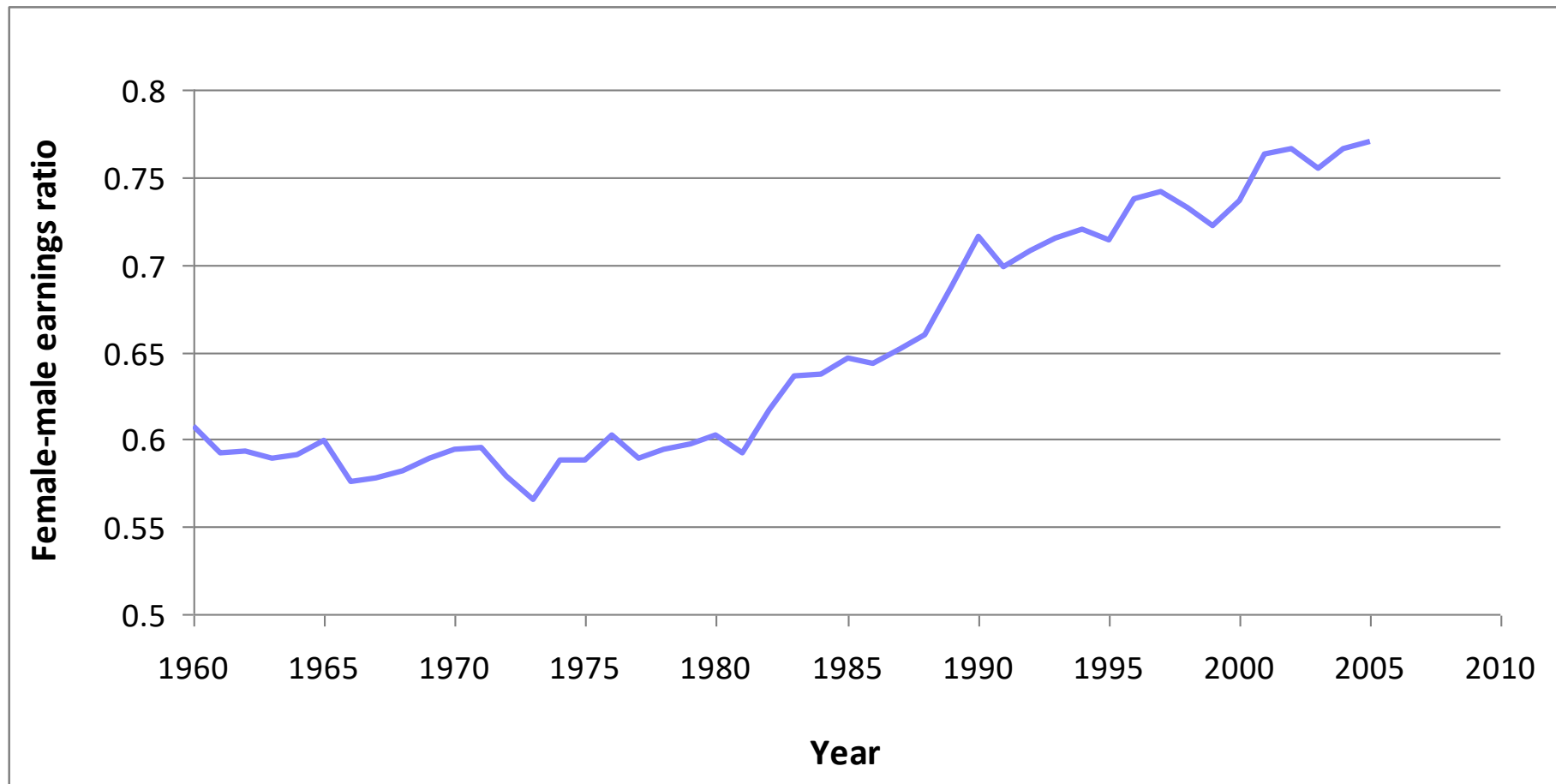
Policy Application: Determinants of the White-Black Wage Ratio

- There has been an upward trend in the wages of blacks in recent years.
 - This has been attributed to increases in the quality and quantity of black schooling.
 - Government programs have positively affected black wages.
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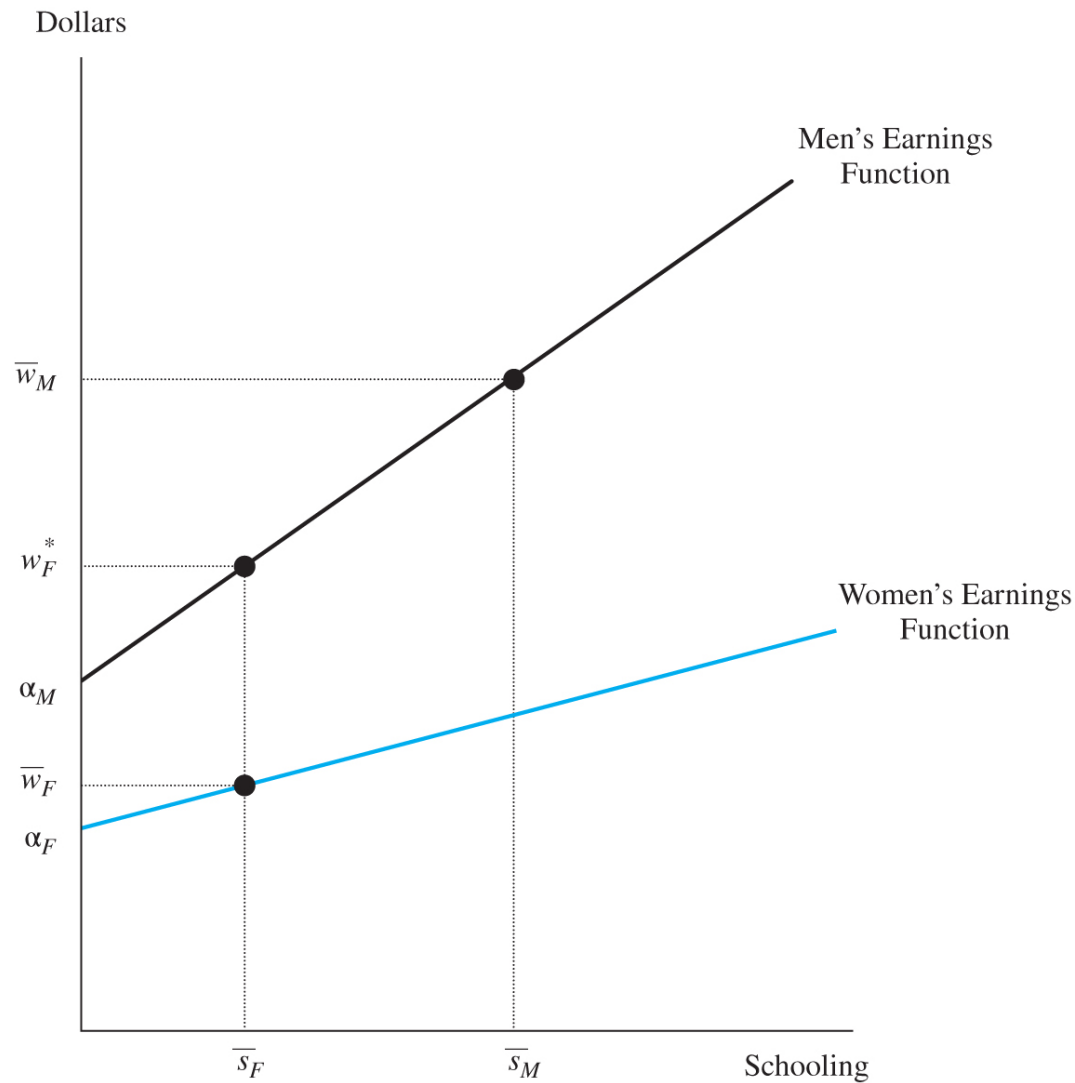
Policy Application: Determinants of the Male-Female Wage Ratio

- Occupational crowding has segregated women into particular occupations where the return to education is lower.
 - Human capital is more profitable the longer the payoff period.
 - Women are better off if they enter occupations in which their skills do not deteriorate during the years they spend in the household sector.
-

Trend in the Female-Male Earnings Ratio, 1960-2005



Measuring the Impact of Gender Discrimination on the Wage



The average woman has s_F years of schooling and earns w_F^- . The average man has s_M years of schooling and earns w_M^- . Part of the wage differential arises because men have more schooling than women. If the average woman was paid as if she were a man, she would earn w_F^* . A measure of discrimination is then given by $w_F^* - w_F^-$.

Policy Application: Determinants of the White-Black Wage Ratio

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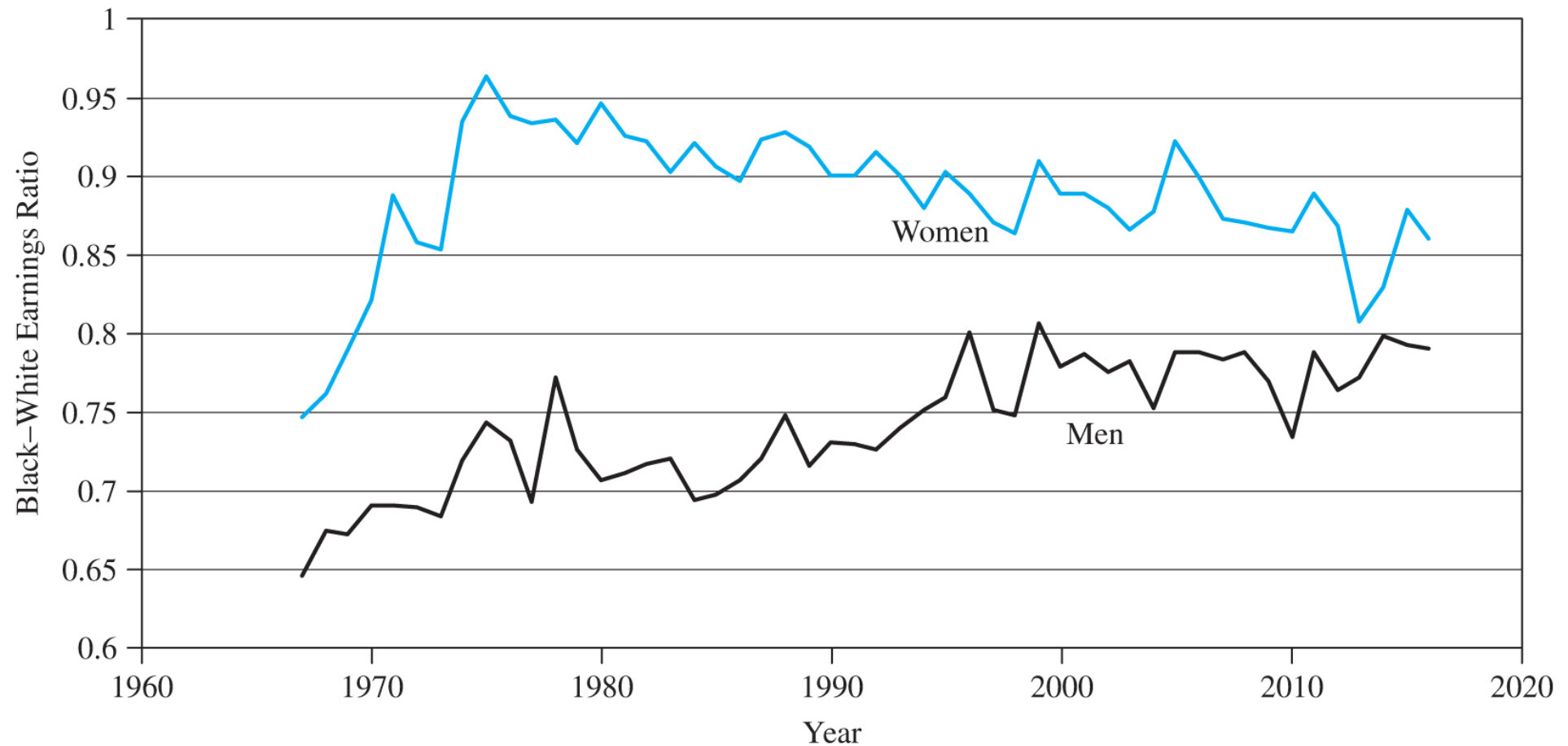
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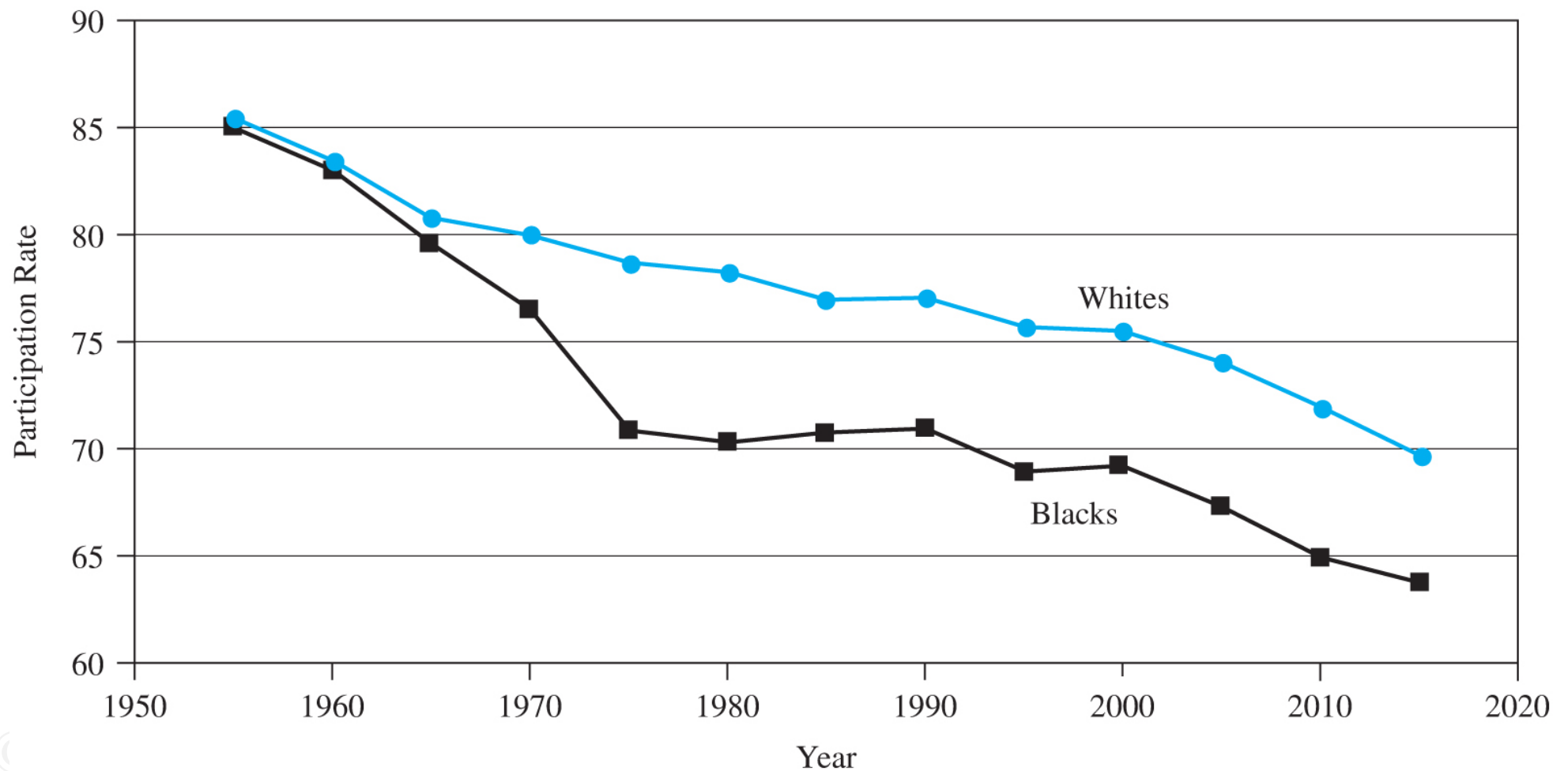
The Oaxaca Decomposition of the Black-White Wage Differential, 1995

	Controls for Differences in Education, Age, Sex, and Region of Residence	Controls for Differences in Education, Age, Sex, Region, and Occupation and Industry
Raw log wage differential	-0.211	-0.211
Due to differences in skills	-0.082	-0.144
$\frac{\epsilon_a}{v}$ Due to discrimination	-0.134	-0.098

The Trend in the Black-White Earnings Ratio, 1967-2012



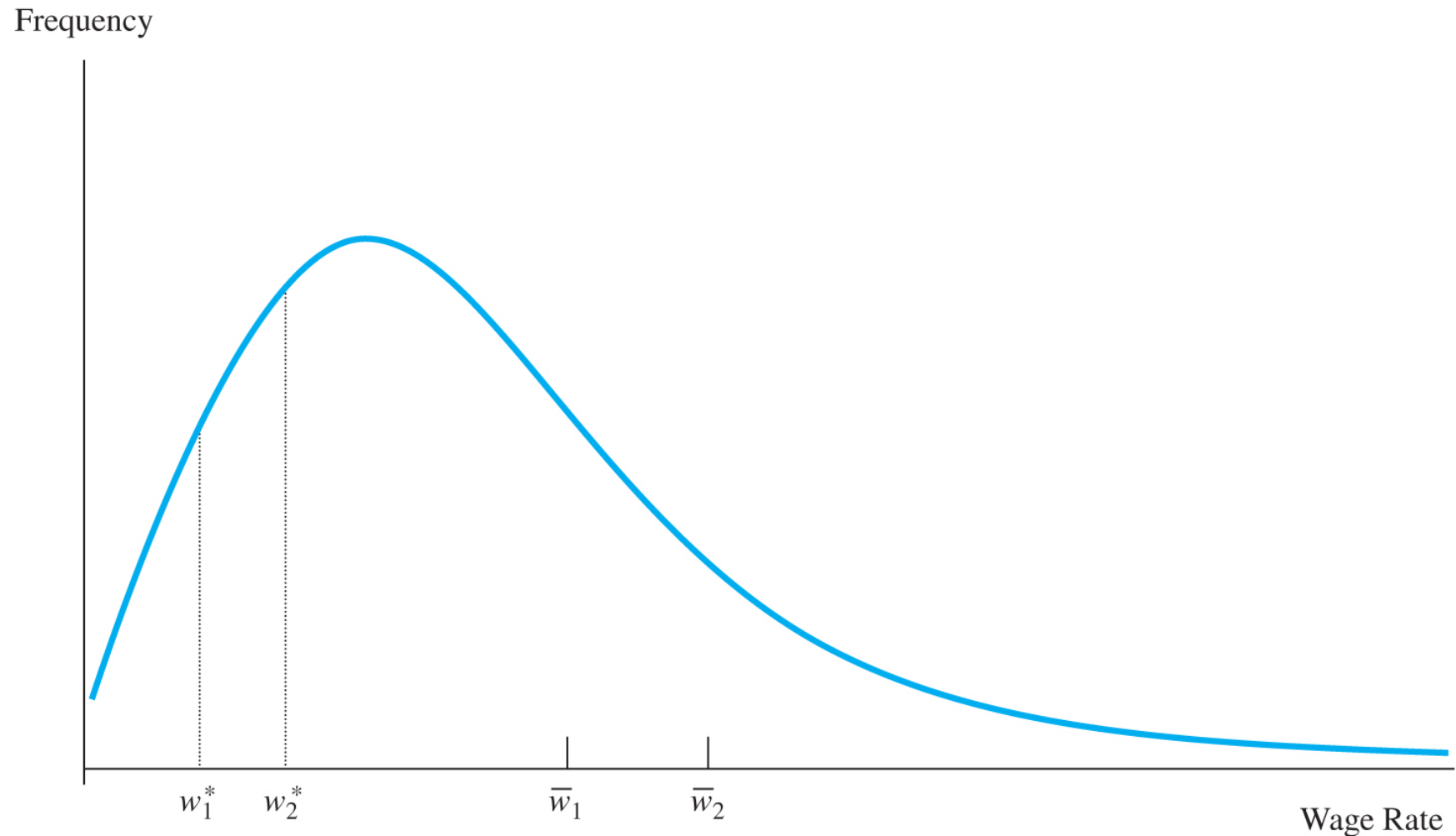
Male Labor Force Participation Rates, by Race, 1955-2010



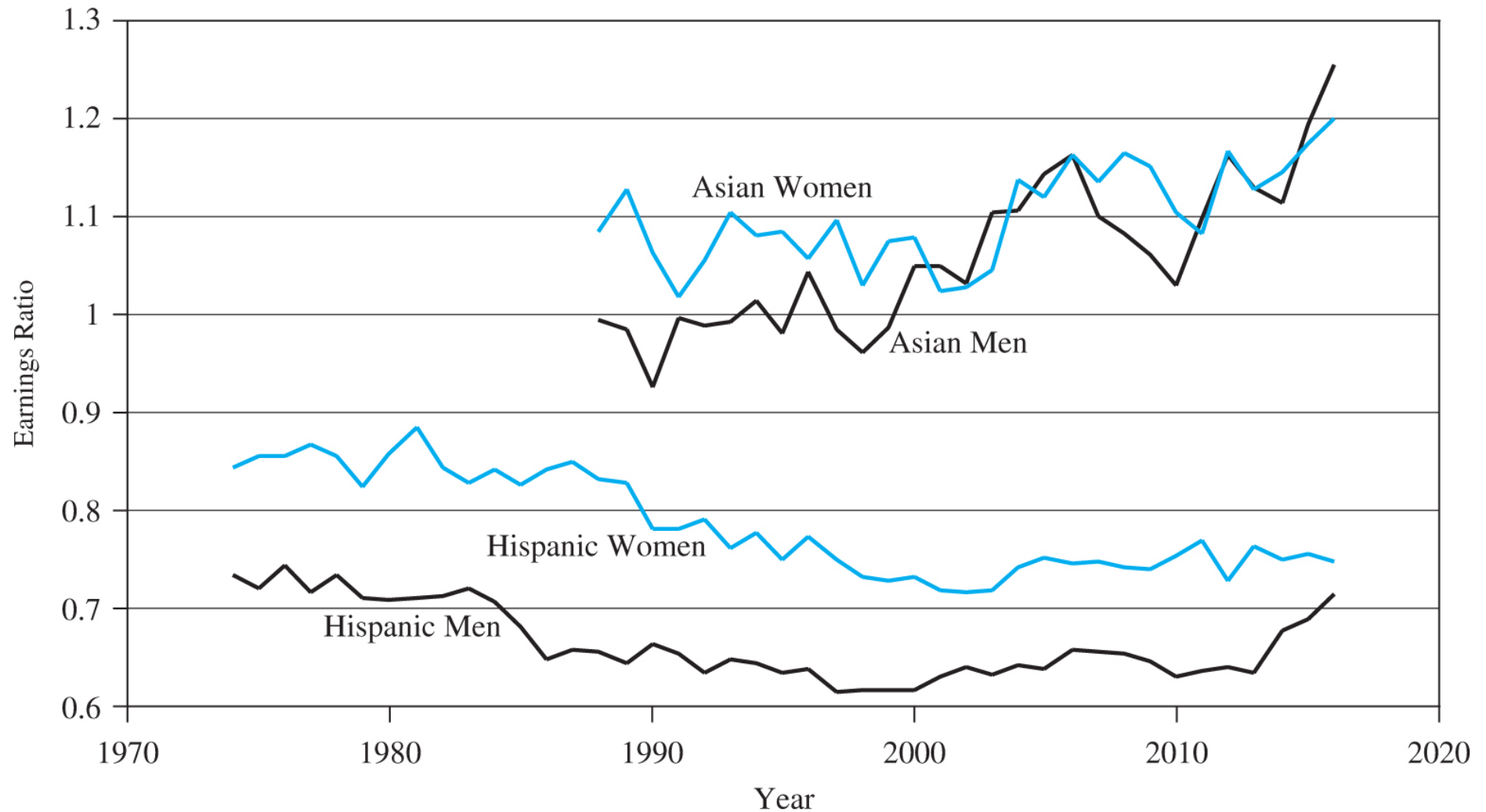
Discrimination Against Other Groups

- Differences in wages can be linked to varying educational attainment.
 - Less skilled workers earn less, just as human capital theory proposes.
 - Asians tend to earn more than white, mainly due to schooling.
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The Decline in the Labor Force Participation of Blacks and the Average Black Wage



The Trend in the Earnings Ratio of Hispanics and Asians, 1974-2012



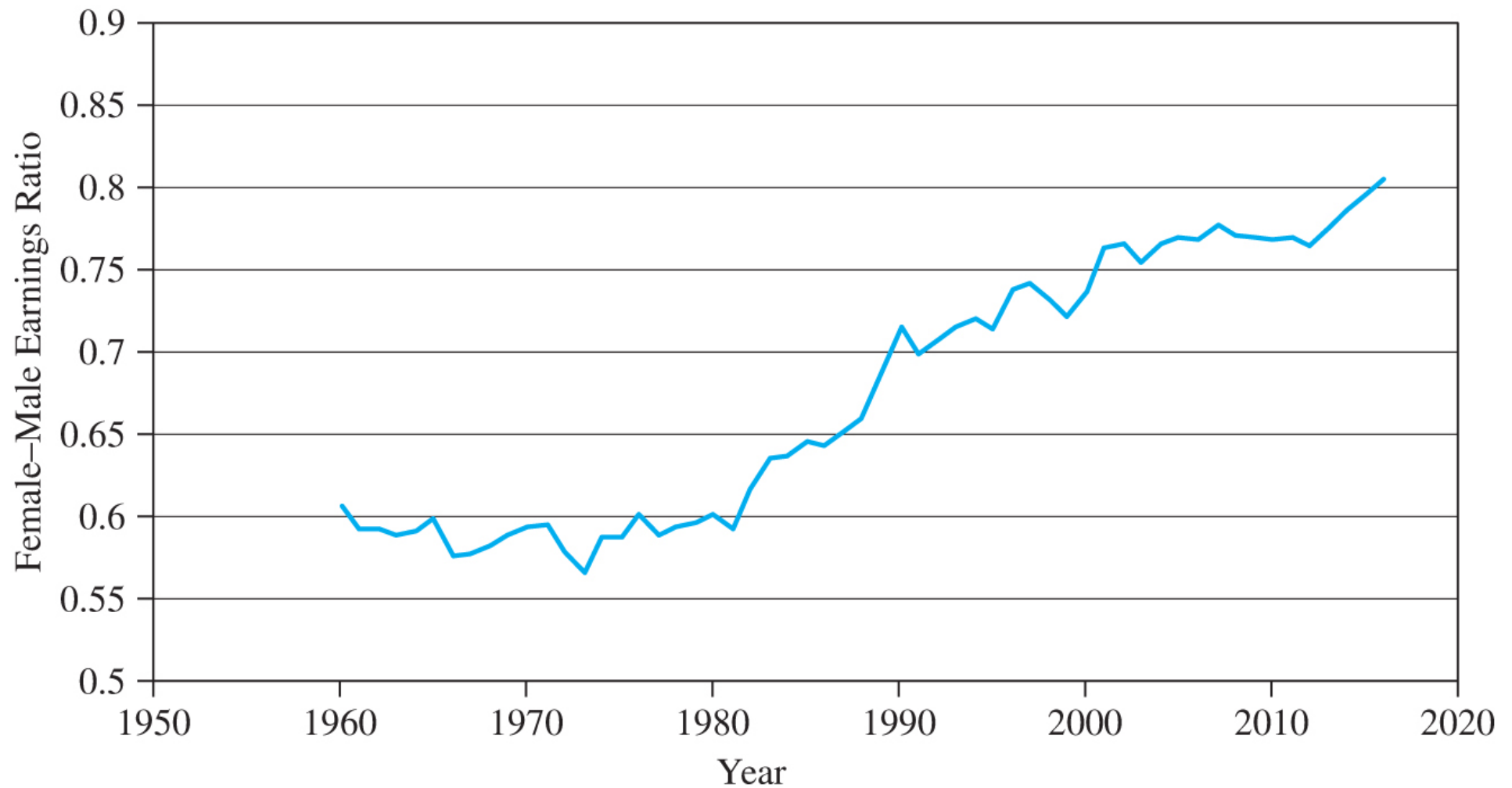
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Human capital is more profitable the longer the payoff period.

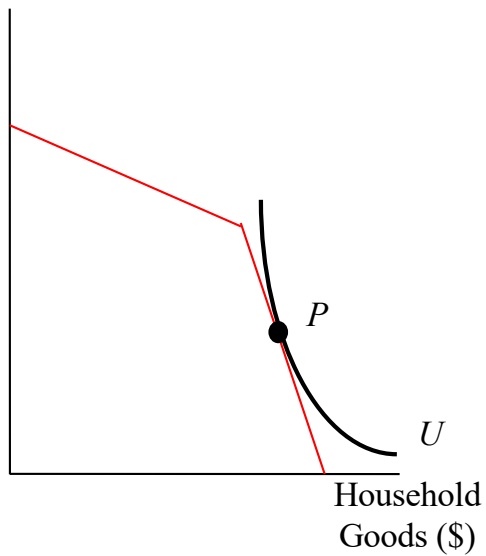
Women are better off if they enter occupations in which their skills do not deteriorate during the years they spend in the household sector.

Trend in the Female-Male Earnings Ratio, 1960-2012

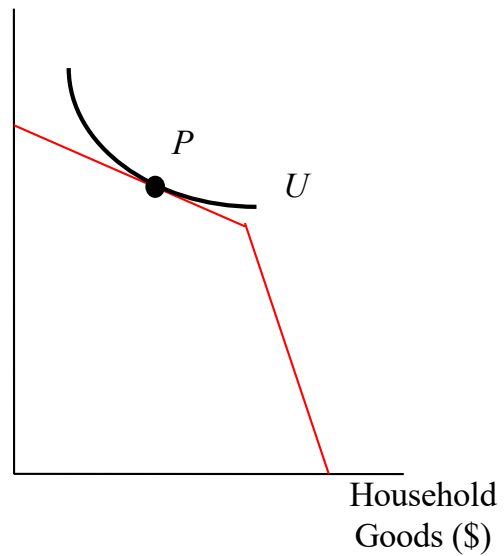


Who Works Where?

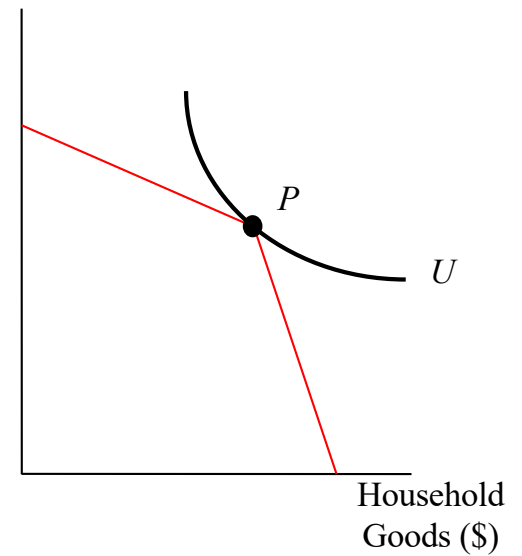
Market
Goods (\$)



Market
Goods (\$)



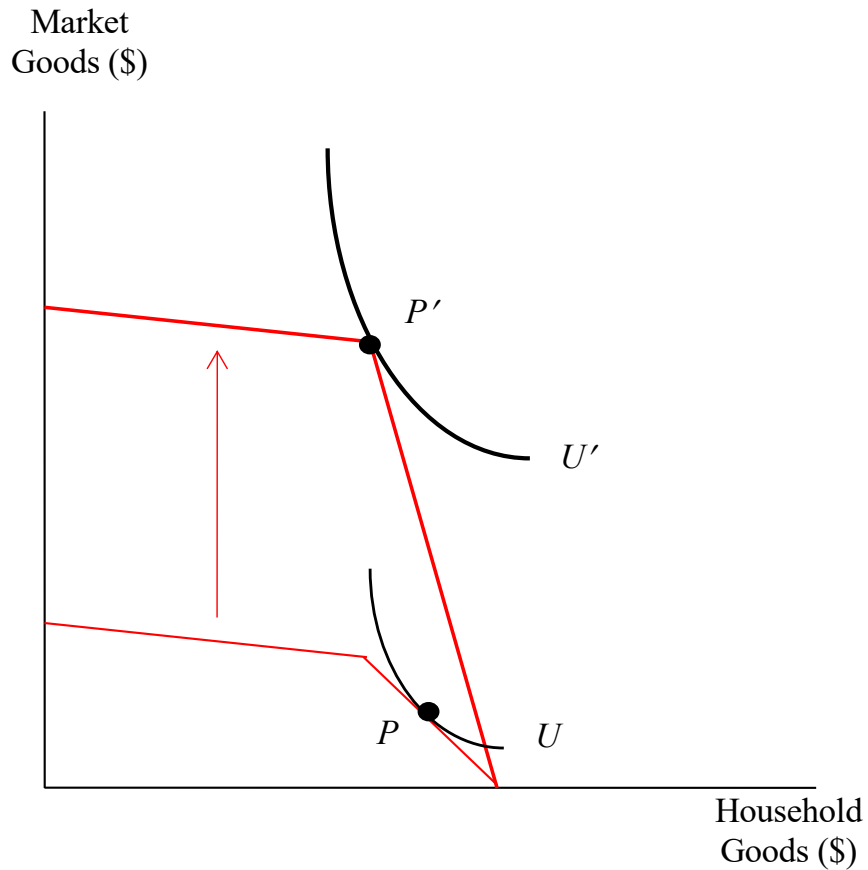
Market
Goods (\$)



Division of Labor in the Household

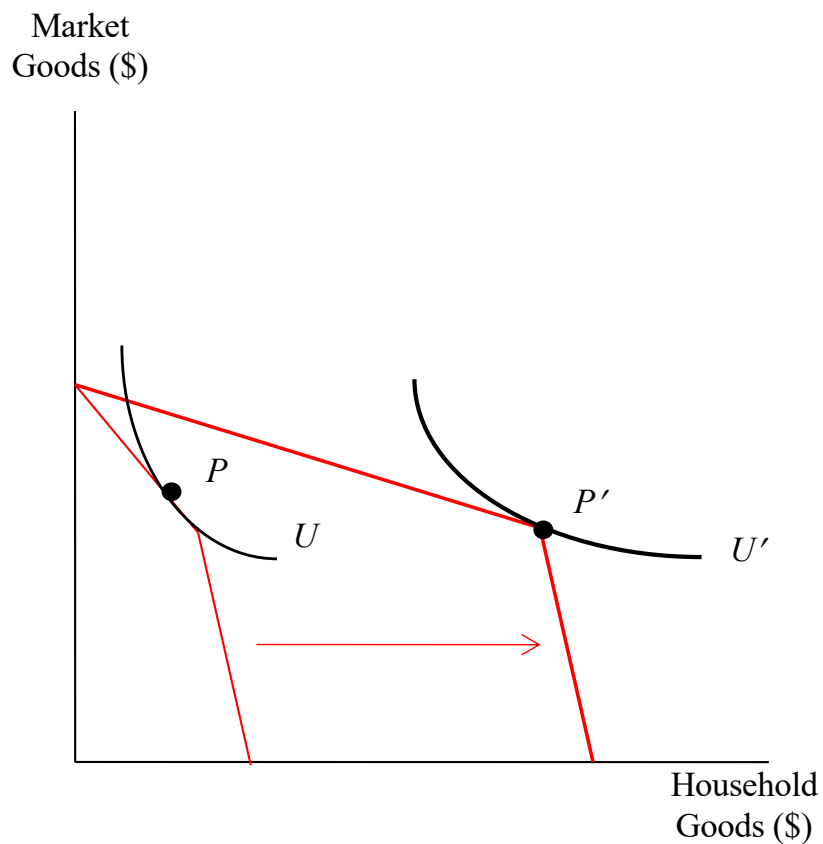
- (a) Jill specializes in the household sector and Jack divides his time between the labor market and the household.
 - (b) Jack specializes in the labor market and Jill divides her time between the labor market and the household.
 - (c) Jack specializes in the labor market and Jill specializes in the household sector.
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An Increase in the Wage Rate or Household Productivity Leads to Specialization



An increase in Jack's wage moves the household from point P to point P' , and Jack now completely specializes in the labor market.

An Increase in the Wage Rate or Household Productivity Leads to Specialization



An increase in Jill's marginal product in the household sector moves the household from point P to point P' , and Jill now completely specializes in the household sector.