Discrimination

Econ 3470 Lecture 7

Labor Economics

2016-2017 Term 1

Introduction

What is Discrimination? After controlling for

- education, age
- female/male earnings ratio in occupation
- hours of work & years of experience

$\Rightarrow$ unexplained difference after control.

or

Some productive characteristics, treated differently due to demographic characteristics (e.g. gender, race).

Introduction

Wage discrimination: within the same occupation, although it can refer to the overall wage discrimination.
Occupational discrimination: same productive characteristics but women end up in lower paying jobs and men in higher-paying jobs.
Occupational segregation: male-dominated and female-dominated jobs.

Occupational discrimination may lead to occupational segregation; but occupational segregation is not necessarily a result of occupational discrimination; role of preferences and household responsibilities.

Index

How do we measure differences in occupational distributions by gender? Index of dissimilarity/the index of occupational segregation by sex is defined as follow:

$$S = \frac{1}{2} \sum_i |M_i - F_i|$$

where M_i = the percentage of males in the labor force employed in occupation i , and F_i = the percentage of females in the labor force employed in occupation i.
0: distributions of men and women are completely equal;
The higher the S, the more segregated is the labor market.

Gender Wage Differentials and Discrimination

Different ways (methods) of measuring discrimination

1. Analysis of the gender wage gap

raw wage gap:

$$\frac{W_f}{W_m}$$

2. Determinants of monthly earnings: The Mincer equation

First estimate the following general Mincer (1974) type human capital earnings equation:

$$\begin{aligned}\text{ln earnings} =& \beta_1 + \beta_2 \text{Education} + \beta_3 \text{Experience} + \beta_4 \text{Experience}^2 \\ &+ \beta_5 \text{Female} + \beta_6 \text{Married} + \beta_7 \text{Widowed} + ... + u \end{aligned} \quad (1)$$

where u is a random error term.

Gender Wage Differentials and Discrimination

Estimating wage discrimination: dummy variable
This is the simplest way i.e. assume that only initial wage levels (wage level for someone without any education and experience) are affected by gender factors while the market does not pay males and females different prices for their endowments (i.e. no slope differential). Hence, the gender wage differential is determined by the intercept differential and it can be captured by adding a gender dummy variable into a wage equation to detect the degree to which women are discriminated against. This type of study is very common in the early stage of gender wage differential analysis.

Gender Wage Differentials and Discrimination

3. The Blinder-Oaxaca decomposition

The above approach ignores the fact that the market may pay men and women differently for their human capital and other endowments. Blinder (1973) and Oaxaca (1973) developed similar decomposition approaches to partition the gender wage differential into components caused by two factors: specifically, a difference in productivity, and an unexplained component that is often referred to as discrimination.

Blinder-Oaxaca decomposition Procedure

First
Let W represented the wage and X_i the characteristics (e.g. education, experience) of the ith individual.

$$\ln W_i = X_i\beta + u_i \qquad i = 1, 2, ..., N \tag{2}$$

where β are the coefficient parameters to be estimated and N is the sample size. The Blinder-Oaxaca approach requires estimation of equation (2) for male and female samples separately.

Blinder-Oaxaca decomposition Procedure

Second

$$\text{Men: } \ln \hat{W}_i^m = X_i^m \hat{\beta}^m$$
$$\text{Women: } \ln \hat{W}_i^f = X_i^f \hat{\beta}^f$$

$$\text{Men: } \ln \overline{W_i^m} = \overline{X_i^m} \hat{\beta}^m$$
$$\text{Women: } \ln \overline{W_i^f} = \overline{X_i^f} \hat{\beta}^f$$

where $\hat{\beta}$ are the OLS estimate of the parameters β from equation (2), and a bar over a variable denotes the mean value.

Blinder-Oaxaca decomposition Procedure

Third

$$\begin{aligned}\overline{\ln W_i^m} - \overline{\ln W_i^f} &= \overline{X_i^m}\hat{\beta}^m - \overline{X_i^f}\hat{\beta}^f \\ &= \overline{X_i^m}\hat{\beta}^m - \overline{X_i^f}\hat{\beta}^f + \overline{X_i^f}\hat{\beta}^m - \overline{X_i^f}\hat{\beta}^m \\ &= (\overline{X_i^m} - \overline{X_i^f})\hat{\beta}^m + \overline{X_i^f}(\hat{\beta}^m - \hat{\beta}^f)\end{aligned}$$

The first term captures earnings gap due to differences in attributes. The second term captures earnings gap due to difference in coefficients (prices).

Blinder-Oaxaca decomposition Procedure

The **first term** is attributable to different endowments.
The **second term** is the portion of the unexplained wage differential, which is usually regarded as the differential attributable to discrimination.

Blinder-Oaxaca decomposition Procedure

A practical consideration associated with the adoption of Blinder-Oaxaca approach is the index number problem. This refers to the fact that the decomposition of the gender wage gap is not unique.

Male weighted decomposition

$$\overline{\ln W_i^m} - \overline{\ln W_i^f} = (\overline{X^m} - \overline{X^f})\hat{\beta}^m + \overline{X^f}(\hat{\beta}^m - \hat{\beta}^f)$$

Use $\overline{X^f}$ and $\hat{\beta}^m$ as weights.

Male weighted decomposition

$$\overline{\ln W_i^m} - \overline{\ln W_i^f} = (\overline{X^m} - \overline{X^f})\hat{\beta}^f + \overline{X^m}(\hat{\beta}^m - \hat{\beta}^f)$$

Use $\overline{X^m}$ and $\hat{\beta}^f$ as weights.

Model Comparison

Model I

$$\ln \text{earnings} = \beta_1 + \beta_2 \text{Education} + \beta_3 \text{Female} + ... \tag{3}$$

β_3: effect of gender on ln W, after controlling for education, etc.

Model Comparison

Model II

$$\overline{\ln W_i^m} - \overline{\ln W_i^f} = (\overline{X^m} - \overline{X^f})\hat{\beta}^m + \overline{X^f}(\hat{\beta}^m - \hat{\beta}^f) \tag{4}$$

Decomposition of gap:

- How much due to $\overline{X^m} - \overline{X^f}$?
- How much due to $\hat{\beta}^m - \hat{\beta}^f$?

Model Comparison

What is the relation between (3) and (4)?

- (3) and (4) both are ways of measuring discrimination
- (3) is step 1 of (4)

What are the differences?

- (3) is earning regression with the female dummy, the first step of looking at discrimination. Coefficient captures % of earning difference, other characteristics considered.
- (4) is decomposition of the gap, a further way of looking at discrimination

Interpretation of the Model

Occupation segregation

The Blinder-Oaxaca decomposition approach is better than the simple dummy variable approach for they distinguish gender productivity differences from gender wage discrimination. Nevertheless, it does not deal with the other important aspect of possible cause for gender wage gap, namely, occupational segregation. It is obvious that as wages vary considerably across occupations, occupational segregation on the basis of gender will affect the gender wage differential. Many studies have reported that women are normally ranked at the lower end of the occupational hierarchy.

Gunderson (1994) used a simple way of accounting for occupations by adding occupational dummy variables in an earnings regression. It assumes that occupations are exogenously given.

Interpretation of the Model

The equation shows part of the gender gap can be explained by differences in workers' characteristics such as education and experience. What is left "unexplained" may be a result of labor market discrimination.
It must be stressed that the unexplained part of the gender gap may be due to factors other than discrimination. Part of the unexplained gap may be due to variables that are not included in the model. If such variables affect earnings, they can account for a significant part of the unexplained gap.

Interpretation of the Model

Intensity of effort is a very important variable explaining earnings, but this variable is absent from almost all data sets because it is very difficult to observe and measure.
Becker (1985) argues that married women do most of the household chores and thus have less energy available for the market than do most husbands. When women spend less energy per hour of work, they earn less.
Moreover, their household responsibilities induce occupational segregation because married women seek occupations and jobs that are less effort intensive and otherwise are more compatible with the demands of their home responsibilities. If Becker's argument is correct, then intensity of work effort may account for a significant part of the unexplained gap.

Interpretation of the Model

Fact

- men work longer hours than women
- married women rather than men do most of the household chores

May be a result of **discriminatory socialization**.
Note that not discriminatory for employers to pay less for less intensive job efforts.
Need to distinguish between

- labor market discrimination which is the responsibility of employers
- discriminatory socialization which is attributable to history and culture.

We can change cultural attitudes through education, but should not require employers to pay more for less intensive work efforts.

Interpretation of the Model

It should be noted that labor market discrimination is not unrelated to discriminatory socialization. In fact, sufficiently strong labor market discrimination would tend to reinforce discriminatory socialization. If a large number of employers discriminate against women by paying less even when they are as competent and hard working as men, then it would be rational for women as individuals to work less hard and invest less in training and education because women have less to gain than man from work and education. Over time, such employer discrimination would reinforce cultural stereotypes.

Interpretation of the Model

Even though labor market discrimination and discriminatory socialization are intertwined, it is important to keep the two conceptually distinct as the policy remedies for the two are different. In principle, our regressions can separate the effects of labor market discrimination and discriminatory socialization.

Given enough data, our regressions can answer the question: Are women paid less even if they are equal to men in every way (in training, education, experience, hours worked, and intensity of effort etc.)? If so, then that gap is due to labor market discrimination.

Of course, even in the absence of labor market discrimination, women may get less pay because they have less education, training, and so on, and this part of the gap may be attributable to discriminatory socialization.

Interpretation of the Model

Unfortunately, we do not have data on every important variable. In particular, we left out **hours worked** and **intensity of work effort**, which may account for half or more of the unexplained part of the gender wage gap. The unexplained part of the gender wage gap obtained from our regressions should thus be taken as an upper bound on the effect of labor market discrimination.

Stylized Facts

Shares of the Civilian Labor Force for Major Demographic Groups: 1990, 2000, 2010, 2020

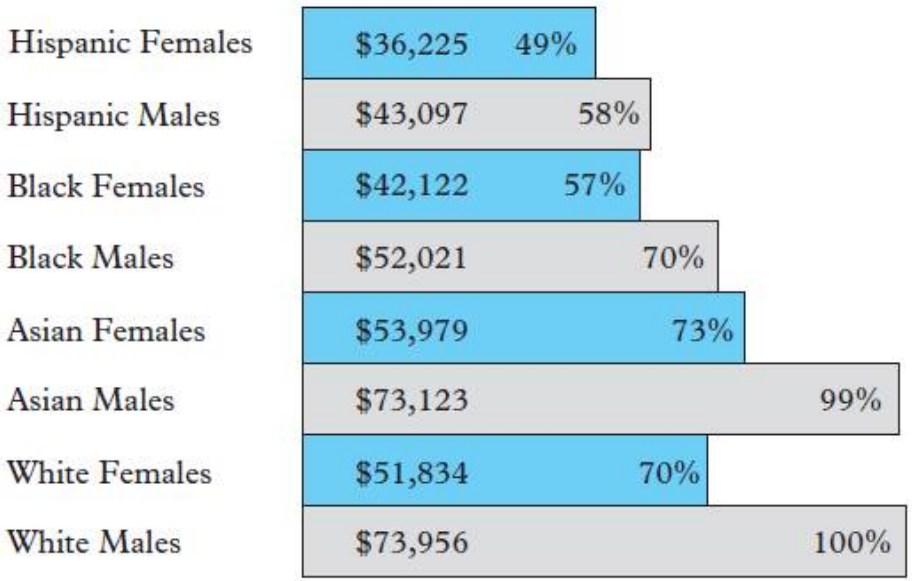
	Year			
	1990	2000	2010	2020 (Projected)
White (non-Hispanic)	77.7%	72.0%	67.5%	62.3%
Women (all races)	45.2%	46.5%	46.7%	47.0%
Blacks (both genders)	10.9%	11.5%	11.6%	12.0%
Asian	3.7%	4.4%	4.7%	5.7%
Hispanics (all races, both genders)	8.5%	11.7%	14.8%	18.6%

[a]Includes Alaskan Natives and Pacific Islanders.

Source: Mitra Toossi, "Labor Force Projections to 2020: A More Slowly Growing Workforce," *Monthly Labor Review* 135 (January 2012): 43–64, Table 1.

Stylized Facts

Mean Earnings as a Percentage of White Male Earnings, Various Demographic Groups, Full-Time Workers over 24 Years Old, 2011



Source: Data in this figure are from U.S. Bureau of the Census, "2012 Current Population Survey, Annual Social and Economic Supplement, Person Income," at http://www.census.gov/hhes/www/cpstables/032012/perinc/pinc03_000.htm.

Stylized Facts

- There are many forces responsible for the remarkable demographic changes in the U.S. labor market in recent decades from the increasing labor market attachments of women to the legal and illegal immigration.
- The shares of some of the major demographic groups: women, African Americans, Asian Americans, and Hispanics in the labor force steadily increased during the past two decades the share of latter group more than doubled from 1990 to 2010.
- Despite the most rapid growth of the Hispanics in the labor force, they still earn substantially less, on average, than white males for full-time work.

Theories of Market Discrimination

- Three general sources of labor market discrimination that have been hypothesized are:
  - Personal prejudice model
  - Statistical discrimination model
  - Noncompetitive force models
- Personal-Prejudice Models:
  - Employer discrimination
  - Customer discrimination
  - Employee discrimination

  The models on personal prejudice assume that employers, customers or employees have preferences for members of certain demographic groups.

Personal Prejudice Models

Personal Prejudice Models: Employer Discrimination

- If employers have a decided preference for hiring white males in high-paying jobs despite the availability of equally qualified women and minorities, they will act (subjectively) as if women and minorities were less productive than the white males.

Let MRP = marginal revenue productivity of all workers in a particular labor market

d = the coefficient of discrimination or the extent to which productivity is subjectively devalued for minorities and women

Personal Prejudice Models

- Market equilibrium for white males is reached when their wage (W_M) equals MRP. That is:

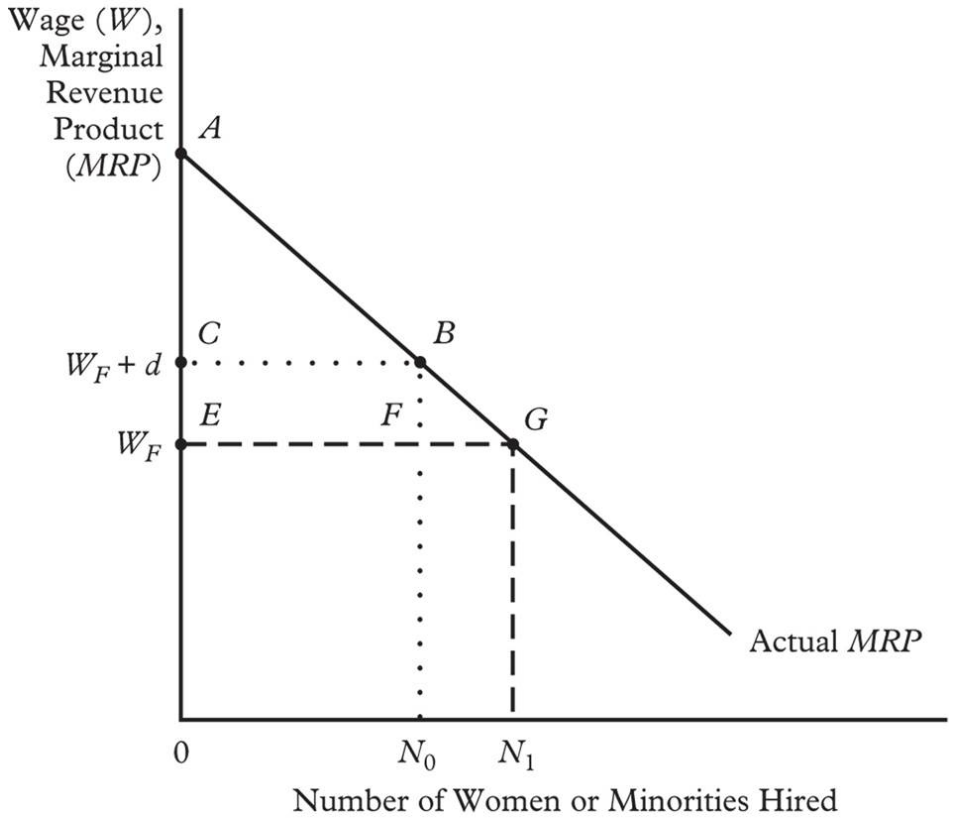
$$MRP = W_M$$

- For women and minorities, equilibrium is achieved only when their wage (W_F) equals their subjective value to firms/employers:

$$MRP - d = W_F$$

Personal Prejudice Models

Equilibrium Employment of Women in Firms That Discriminate



Personal Prejudice Models

Profits under Employer Discrimination

- A discriminatory employer faced with a market wage of W_F for women and minorities will hire less workers (N_0), because at that point $MRP = W_F + d$
- Profit-maximizing employers will hire N_1 workers, that is, they will hire until $MRP = W_F$
- The profits of nondiscriminatory profit-maximizing employers will be higher than those who discriminate, that is, discriminators give up profits in order to indulge in their prejudices.

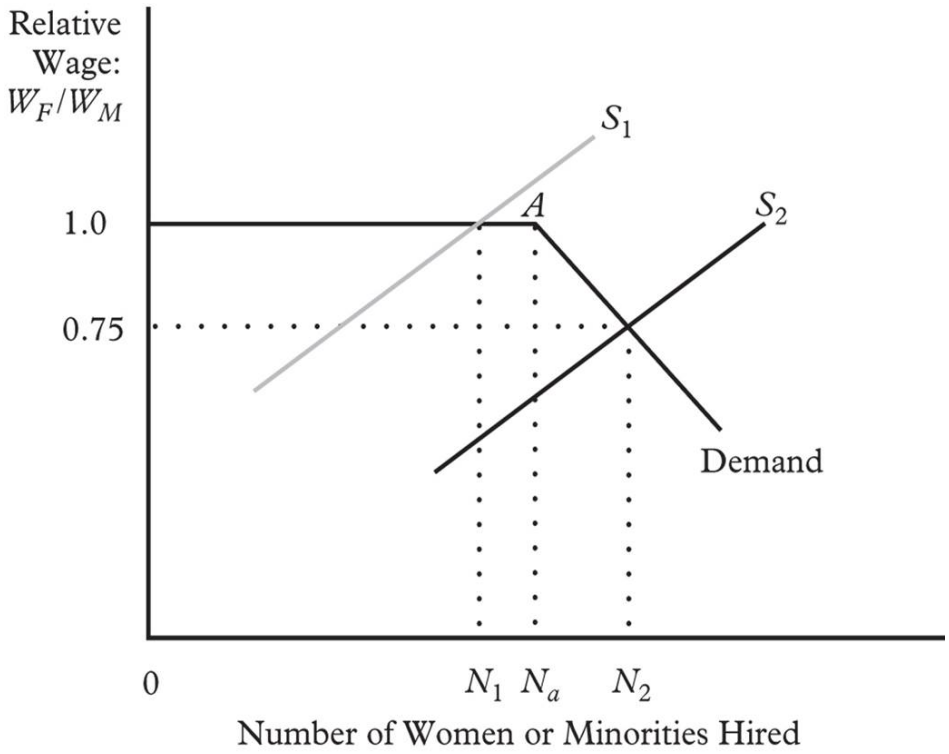
Personal Prejudice Models

Pay Gaps under Employer Discrimination

- Employers differ in their preferences some are willing to hire women or minorities at small wage differentials and others require larger ones.
- There are a number of nondiscriminatory profit-maximizing employers who will hire up to N_a women and minorities at relative wage of unity (that is, at $W_F = W_M$).
- For those employers with discriminatory preferences, W_F must fall below W_M (such as $W_F = 0.75 W_M$) to induce them to hire women and minorities.

Personal Prejudice Models

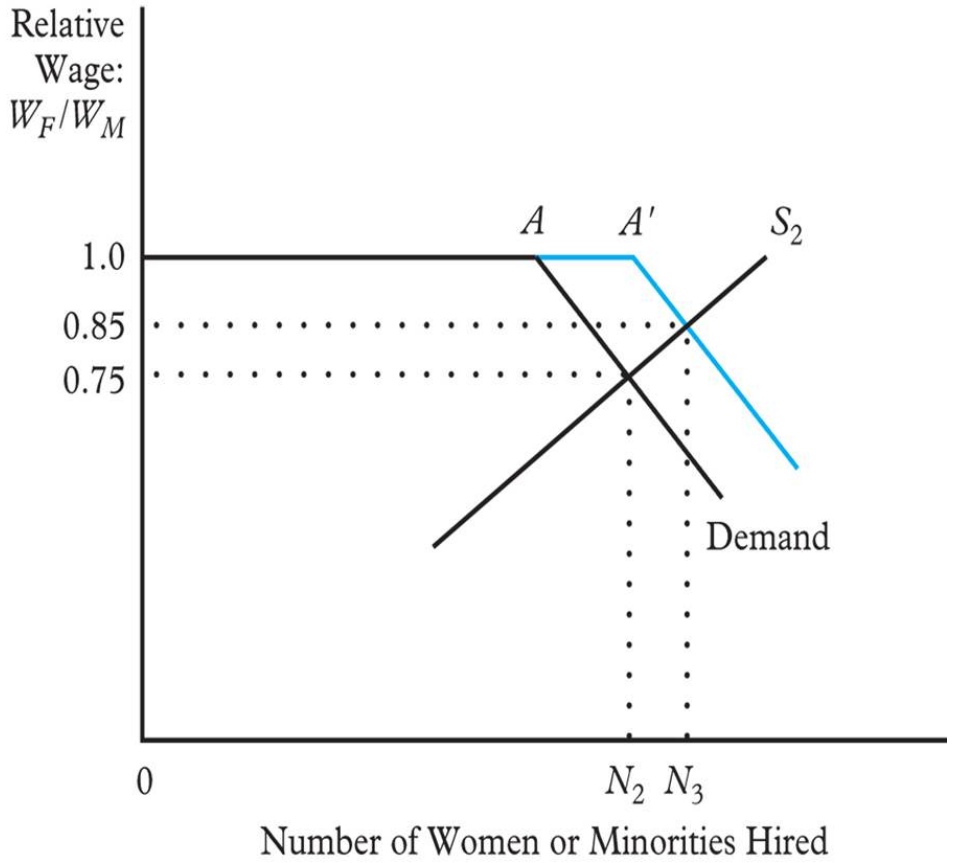
Market Demand for Women or Minorities as a Function of Relative Wages



- $S1$ shows the number of women to be relatively small and all will be hired by nondiscriminatory employers with no wage differential.
- $S2$ shows the supply of women to be large, and some discriminatory employers have to hire women, driving W_F down below W_M.

Personal Prejudice Models

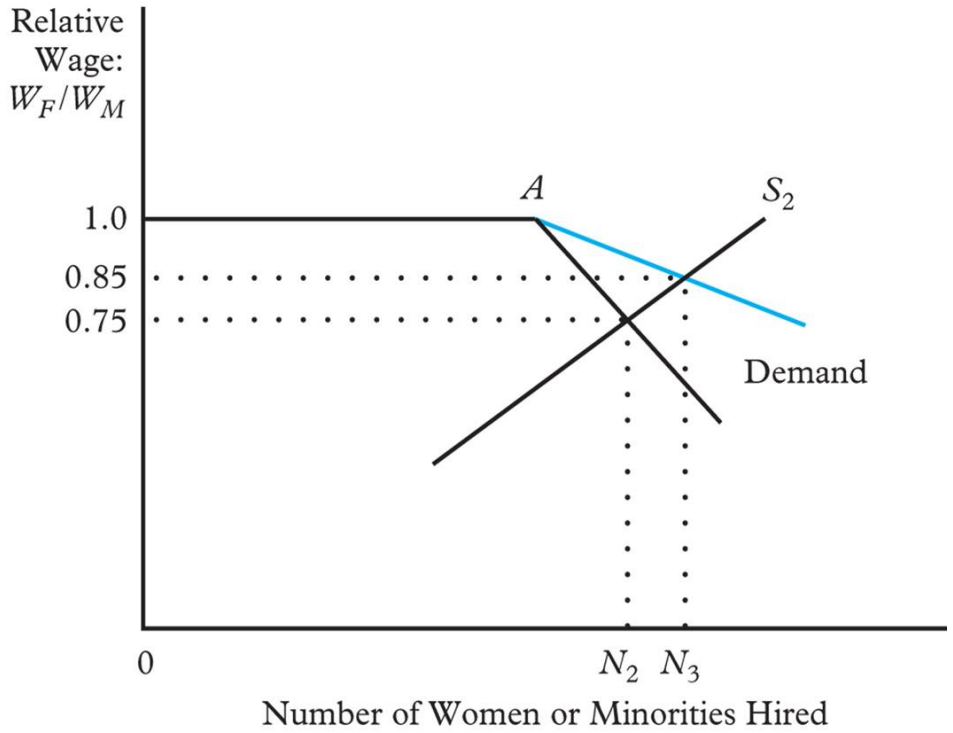
Effects on Relative Wages of an Increased Number of Nondiscriminatory Employers



- An increase in the number of nondiscriminators would rise the wage from 0.75 to 0.85 and increase the number of women hired.

Personal Prejudice Models

Effects on Relative Wages of a Decline in the Discriminatory Preferences of Employers



- If the number of prejudiced employers stayed the same but their discriminatory preferences were reduced, the downward-sloping part of the market's relative demand curve will be flatten.

Personal Prejudice Models

Summarize the empirical predictions about race-related wage gaps:

1. Race-related pay gaps will be greater (holding human capital constant) when the black population in a region is greater.
2. Pay gaps will be smaller, other things equal, when the prejudice of the white employers who hire blacks is smaller.
3. Pay gaps will be unaffected by the level of prejudice of the most prejudiced employers (the ones who do not hire blacks).

Personal Prejudice Models

Which Employers Can Afford to Discriminate?

- The employer discrimination model implies the discriminators maximize utility instead of profits, and as a result, their survival is questionable because with the presence of competitive forces, the nondiscriminatory firms would make more profits and end up buying them out and take over the market.
- The opportunity to indulge in discriminatory preferences is especially strong among monopolies.
- Studies of the banking and trucking industries provide evidence that is consistent with greater presence of race and gender discrimination among monopolies.

Personal Prejudice Models

Personal-Prejudice Models: Customer Discrimination

- As a personal-prejudice model, it stresses customer prejudice as a source of discrimination:
  - In some situations, customers may prefer to be served by white males and by women or minorities in others.
- One of the implications of customer discrimination is that it will lead to segregation in the occupations with high customer contact:
  - Firms that cater to discriminatory customers will hire only the preferred group of workers, pay higher wages, and charge higher prices.
- A study of TV viewership for professional basketball games in the United States found that ratings rose when there was greater participation by white players.

Personal Prejudice Models

Personal-Prejudice Models: Employee Discrimination

- As a personal-prejudice model it stresses the situations in which white male workers may avoid to interact with minorities or women in ways they consider distasteful.
- White males with discriminatory preferences tend to quit or avoid working for employers who hire and promote on a nondiscriminatory basis.
- It is costly to eliminate employee discrimination because white males constitute a large fraction of the labor force, and producing without them will be difficult.
- The most direct test for the presence of employee discrimination comes from a study that found young white males earned more in racially integrated workplaces than if they worked in segregated environments.

Statistical Discrimination

Statistical Discrimination

- Statistical discrimination occurs when in addition to using personal characteristics of the applicants, the average characteristics of the group are factored into the hiring decision even in the absence of personal prejudice.
- Statistical discrimination can be viewed as part of a screening problem that arises when observable personal characteristics that are correlated with production are not perfect predictors.
- The use of group data in making hiring decisions can give rise to labor market discrimination because people with the same measured productive characteristics (test scores, education attainment experience, etc) will be treated differently depending on group affiliation.

Noncompetitive Models of Discrimination

- The noncompetitive models of discrimination are based on the assumption that individual firms have some degree of influence over the wages they pay, either through collusion or through some source of monopsonistic power.
- Crowding
- Dual labor markets
- Search-related monopsnoy
- Collusive behavior

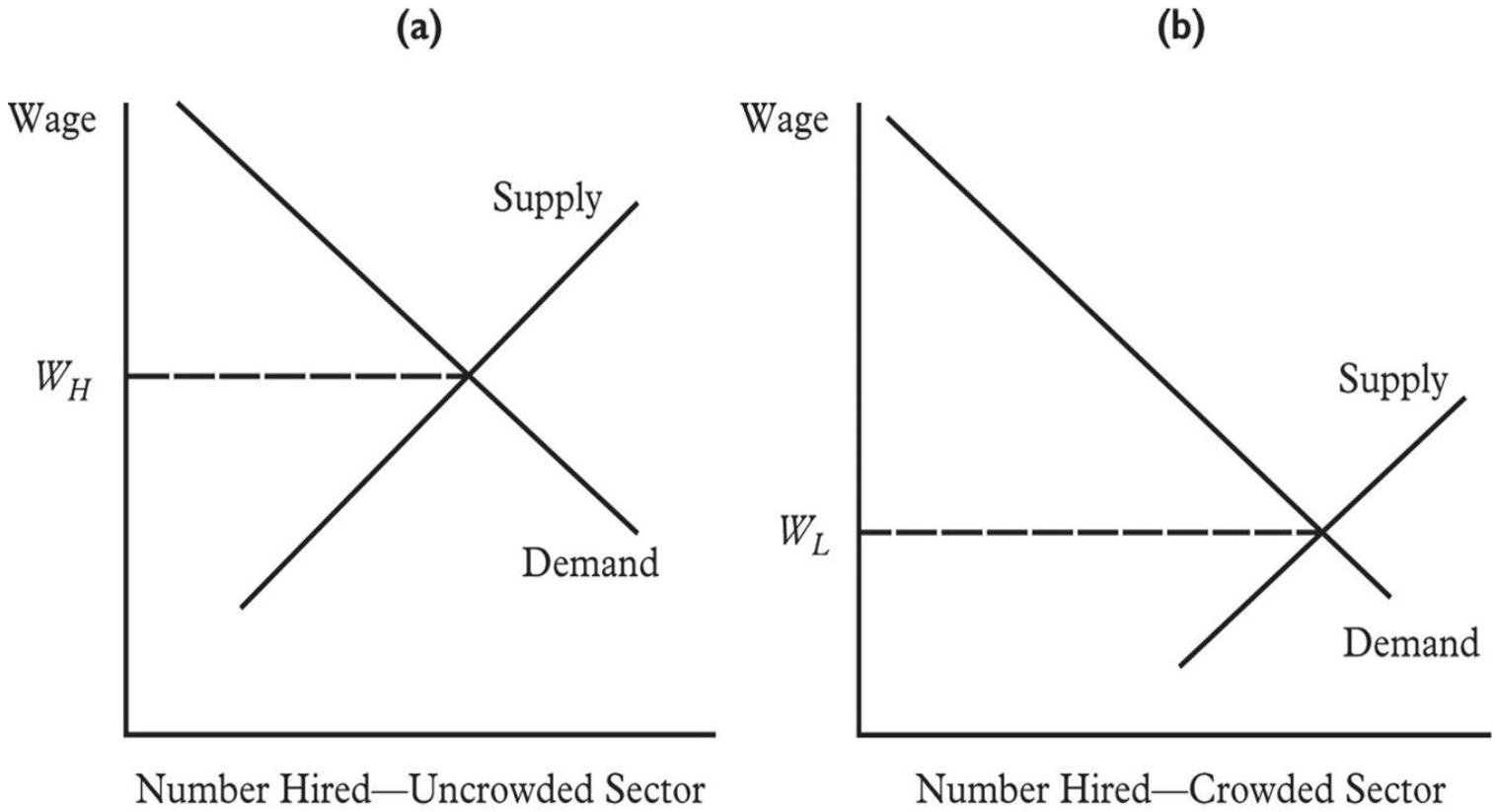
Noncompetitive Models of Discrimination

Crowding

- The existence and extent of occupational segregation by gender (male jobs or female jobs) have caused some to argue that it is the result of a deliberate crowding policy intended to lower wages in certain occupations.
- Women are artificially crowded into certain jobs with lower wages, and one would expect that firms employing only men would find it attractive and profitable to replace these men with less-expensive women workers, and that this profit-maximizing behavior should eventually eliminate any wage differential.

Noncompetitive Models of Discrimination

Labor Market Crowding



In Panel (a), wage W_H is relatively high while Panel (b) depicts a market in which crowding causes supply to be large relative to demand thus resulting in wage W_L that is comparatively low.

Noncompetitive Models of Discrimination

Dual Labor Markets

- As a variant of the crowding hypothesis, the more recent view is that the labor market is divided into two noncompeting sectors, namely:
- **The primary labor market (or sector)**: high wage, stable employment, good working conditions and opportunities for advancement $\Rightarrow$ male
- **The secondary labor market (or sector)**: low wage, unstable, dead-end jobs, poor working conditions $\Rightarrow$ female
- Women and minorities are relegated to the secondary sector, and they are tagged as unstable and undesirable workers with little hope of acquiring primary-sector jobs.

Noncompetitive Models of Discrimination

Search-Related Monopsony

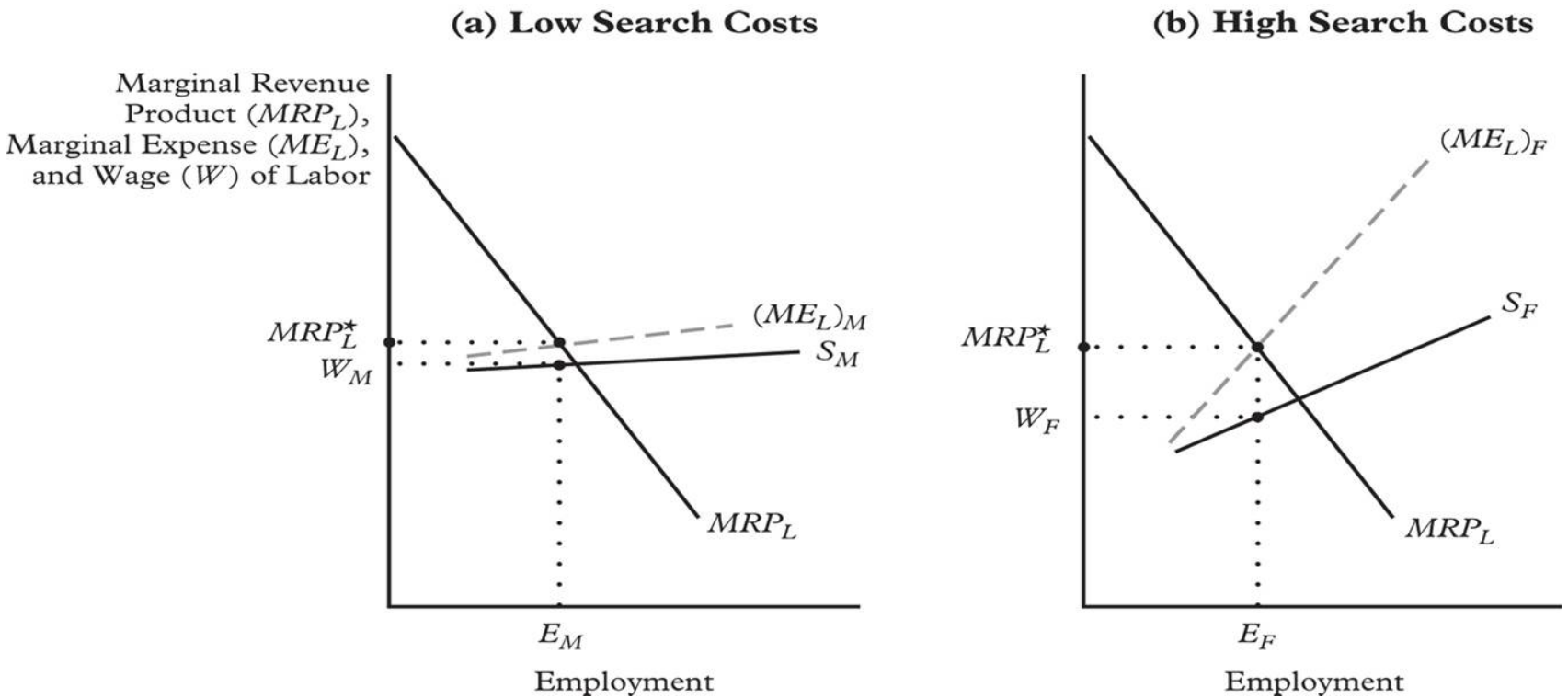
The search-related monopsony is built around the presence of job search costs for employees because some employers will refuse to hire women or minorities due to:

- their own prejudices
- prejudices of their customers
- prejudices of their employees.

Minorities and women looking for jobs search longer and harder than do white men to generate the same number of job offers.

Noncompetitive Models of Discrimination

Search-Related Monopsony and Wage Discrimination



Noncompetitive Models of Discrimination

- Panel (a): white males with relatively low search costs. The labor supply curve (S_M) is relatively flat. W_M is slightly below $MRPL^*$.
- Panel (b): women and minorities with higher search costs, and a more steeply sloped labor supply curve (S_F) and marginal expense of labor curve $(MEL)_F$. W_F is much below $MRPL^*$.
- Comparing panels (a) and (b), $W_F < W_M$ despite the fact that both groups have the same $MRPL^*$.

Noncompetitive Models of Discrimination

Collusive Behavior

It is argued that prejudice and the conflicts it creates are inherent in a capitalist society because they serve the interests of owners. However,

- If all white employers (say, A through Y) conspire by agreement to keep women and minorities in low-wage, low-status jobs, they can all reap monopoly profits.
- Employer Z can break the agreement by hiring women or minorities cheaply and enhance its profits by hiring these equally productive workers, even though other employers agree not to hire them.

Evaluation of Discrimination Theories

- They help us understand discrimination; different theories may be applicable in different situations;
- Some theories postulate the existence of noncompetitive elements at the outset. The personal prejudice theories do not, but they have trouble explaining how current labor market discrimination can persist in competitive markets;
- All models of discrimination seem to agree on one thing: any persistence of labor market discrimination is the result of forces or motivations that are either noncompetitive or very slow to adjust to competitive forces;
- The various theories and the facts they seek to explain suggest that government intervention might be useful in eliminating discrimination.

Government Intervention

Government Intervention in Eliminating Sex Discrimination

- Government laws in fighting sex/race discrimination have existed in most developed countries for many years.
- HK introduced Sex Discrimination Ordinance in 1995.
- Main point: equal pay for equal work; equal employment/promotion opportunities.
- Recent comparable worth laws in some countries: equal pay for work of equal value. "Value" or "worth" of jobs determined by: skill, effort, responsibility, and working conditions.
- Problems with comparable worth: valuation of jobs is subjective; demand conditions are not considered.
- http://www.eoc.org.hk/EOC

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