

# **Discrimination in Theory**

**ECON 383: Economics of Discrimination**

**Winter 2018**

# Wage gaps

- We observe large wage gaps between many groups in the economy (gender, race, etc)
- Many possible explanations
- Today: Can employer prejudice explain wage gaps?
- We will investigate this *theoretically*

# Theoretical vs empirical analysis

- Broadly classify all economics research as *theoretical* or *empirical*
- Theory is *deductive*: start with a set of observations and assumptions, develop the logical implications of them (a model)
- Empirical analysis is *inductive*: describe the world and make predictions based on what is observed now or what has been observed in the past
- Theory can be *tested* with empirical analysis -- it can be "falsified" if empirical observations (data) contradict the theoretical model

# What is a model?

- Theory is based on models
- A model is a simplification of reality
- A collection of assumptions and the logical implications of those assumptions
- The predictive or explanatory power of a model is only as good as the assumptions
- Using a model requires a tradeoff between tractability and realism (simpler models are easier to work with, less accurate)

## Why theory?

1. Theory allows us to interpret empirical results (all empirical methods are based on *some* theory)
2. Analyze the implications of certain behaviors and beliefs
3. Predict how policy will affect society

# Economic theory

- Most economic theory is based on *optimization*
- Consumers are trying to *maximize* their well being
- Businesses are trying to *maximize* profits and *minimize* costs
- *Equilibrium* occurs when everyone is simultaneously achieving their (constrained) optimum (i.e. nobody wants to behave differently given their circumstances)
- Equilibrium is where the model "ends up" after time

# Terminology

- Individuals in the models are called *agents*
- Companies (businesses) are called *firms*
- Firms use *factors* (labor, capital) to produce *output* (goods and services)

# Production

- Firms produce output by employing factors in accordance with a *production function*
- The production function determines how much output can be produced with a given combination of factors
- For simplicity, assume one factor (labor)



## Diminishing MPL

- Each additional worker is called "marginal labor"
- The additional output that each new worker can produce (the marginal product) decreases as the number of workers increases (limited space, tools, etc)
- The *marginal product of labor* (MPL) decreases as labor increases

# Profit maximization

- Firms are profit maximizers
- Choose the amount of labor to employ that maximizes profits
- Firms employ labor until the value of the marginal product of labor is equal to the wage rate

## Profit max, cont

- Firm is deciding whether or not to hire an additional worker
- If they hire them, must pay a wage of  $w$
- The worker can produce an additional MPL units of output
- Firm can sell that output and receive  $pMPL$  additional revenue
- When should the firm hire the worker?

## Profit max, cont

- Firm will hire the worker when  $pMPL > w$
- If the additional revenue is greater than the additional costs, then profits will increase
- profits = revenue - cost

## Profit max, cont

- Now, firm is deciding whether or not to fire a worker (downsize)
- If they fire them, save  $w$  in wages
- The worker can produce an additional MPL units of output
- Firm can sell that output and receive  $p$ MPL additional revenue
- When should the firm fire the worker?

## Profit max, cont

- Firm will fire the worker when  $pMPL < w$
- If the additional revenue is less than the additional cost

## Profit max, cont

- The profit maximizing firm employs labor at the point where  $pMPL = w$
- If  $pMPL \neq w$ , the firm could increase profits by changing labor, which means they are not profit maximizing!

## Factor markets

- For now, assume the labor market is competitive
- Many workers (same productivities), large number of firms competing for those workers
- The decision of each individual firm does not affect labor market outcomes (wages and employment)
- Each firm takes the wage rate as given -- they can employ everyone they want at the market wage rate, but nobody will work for less than the market wage rate



## Profits and prejudice

- There's no room for prejudice if firms are profit maximizing!
- The productivity of workers is the only characteristic that matters for profits
- But different classes can have different productivities
- There can be discrimination without firm prejudice

## Becker model

- Gary Becker, *The Economics of Discrimination*, 1957
- Among the first economists to apply economic theory to "non-economic" situations (crime, family, etc)
- What if firms care about profits *and* worker characteristics (nepotism or prejudice)?

## Employer discrimination

- Suppose there are two classes of workers, A and B
- Workers have the same productivities
- Some firms dislike type B workers, would rather not hire them
- Becker: firms behave *as if* type B workers are more costly than their wage rate
- There is a dollar amount that captures the firm's distaste for B workers ("I'll only hire a B worker if they are \$5 cheaper than an A worker")
- Call this amount the *prejudice coefficient* (PC)

## Hiring decisions

Firms will employ only type B workers if:

$$w_A > w_B + PC$$

## Hiring decisions, cont

Firms will hire only type A workers if:

$$w_A < w_b + PC$$

## Unprejudiced firms

- If  $PC = 0$ , firms will simply hire the cheapest labor available
- If  $w_B < w_A$ , only type B workers will be hired
- Firms will be segregated

## Prejudice and profits

- Firms with  $PC > 0$  will underemploy labor relative to the profit-maximizing level
- Prejudiced firms have lower profits than non-prejudiced firms
- In this model, *prejudice does not pay!*

## Competitive markets

- When markets are *competitive*, firms may enter and exit whenever they choose
- If there are positive profits, firms enter the market
- More firms = more supply, profits decrease
- Long-run (economic) profits are zero in competitive markets



## Discrimination in competitive markets

- Prejudiced firms have lower profits than non-prejudiced firms
- Competition induces non-prejudiced firms to enter industry (high profits)
- Profits of prejudiced firms decrease below zero
- Long run: prejudiced firms are driven out of the market

## Rent seeking

- Suppose prejudiced firms know that non-prejudiced firms will enter the market
- They have an incentive to make the market less competitive
- They can create *barriers to entry* and make *economic rents*
- Make it more costly for non-prejudiced firms to hire B workers
- Easier to do if politicians and policy makers also have prejudice!