



# The Labor Market Part I

All labor that uplifts humanity has dignity and importance  
and should be undertaken with painstaking excellence.

Martin Luther King, Jr.

# Labor Supply



The **labor supply** includes those who are willing and able to work specific amounts of time at alternative wage rates in a given time period, *ceteris paribus*.

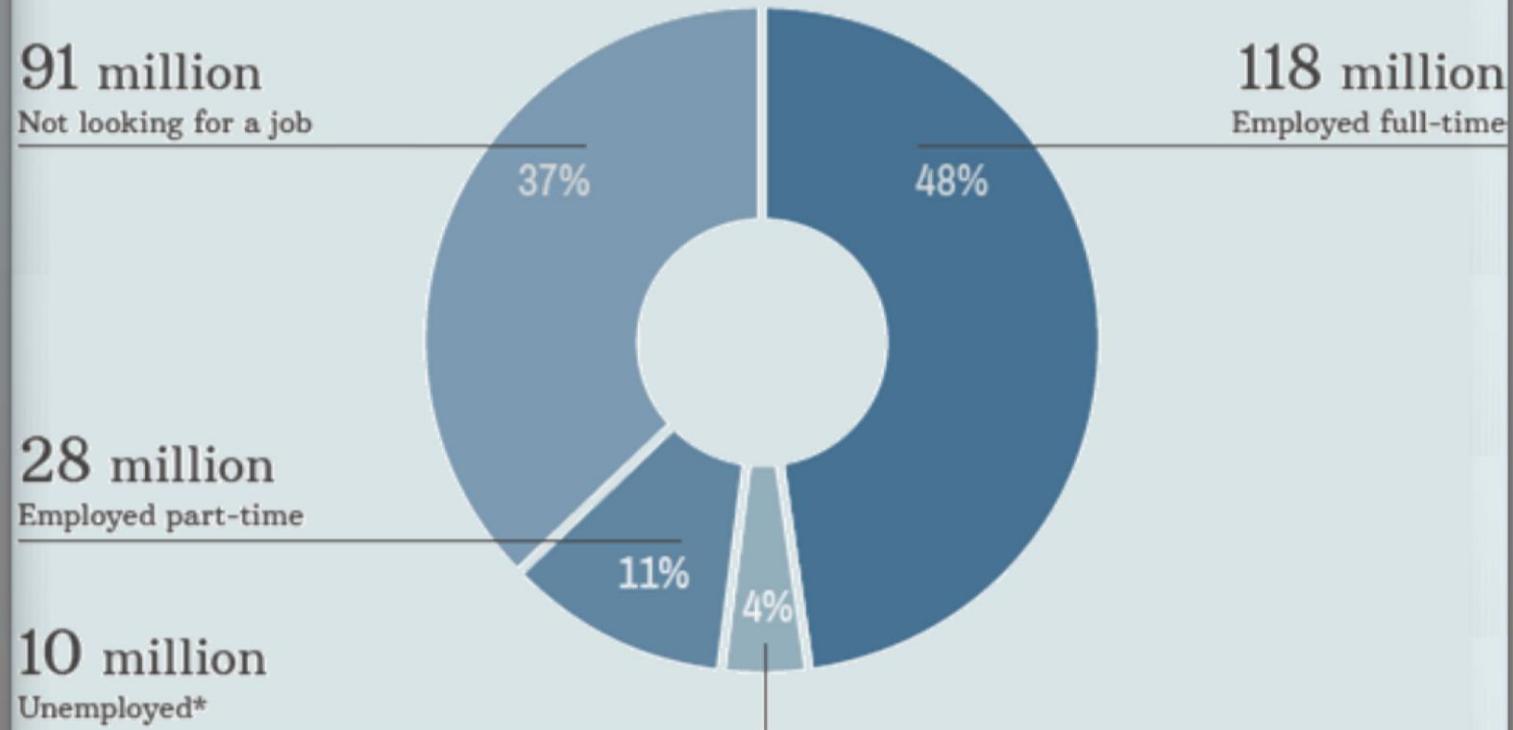
The supply decreases as the long-time unemployed drop out in discouragement.



# Not Working, Not Looking



Job status of 247 million Americans, over 16



\*NOTE: 'UNEMPLOYED' INCLUDES OUT-OF-WORK PEOPLE WHO LOOKED FOR A JOB IN THE LAST 4 WEEKS. SOURCE: BUREAU OF LABOR STATISTICS

The unemployment rate isn't always the best measure of the job market, because it only includes people who have actively searched for work within the last four weeks. Many Americans just aren't looking for jobs.

# Not Working, Not Looking



In fact, about 91 million adult Americans don't work and aren't looking for jobs. They make up 37% of the population -- the highest level on record since 1978.

Some of them are workers who've been out of a job for so long that they've given up entirely.

In addition to discouraged workers, this group also includes people who are retired, enrolled in high school or college and staying at home to take care of young children or elderly relatives.

# Income vs. Leisure



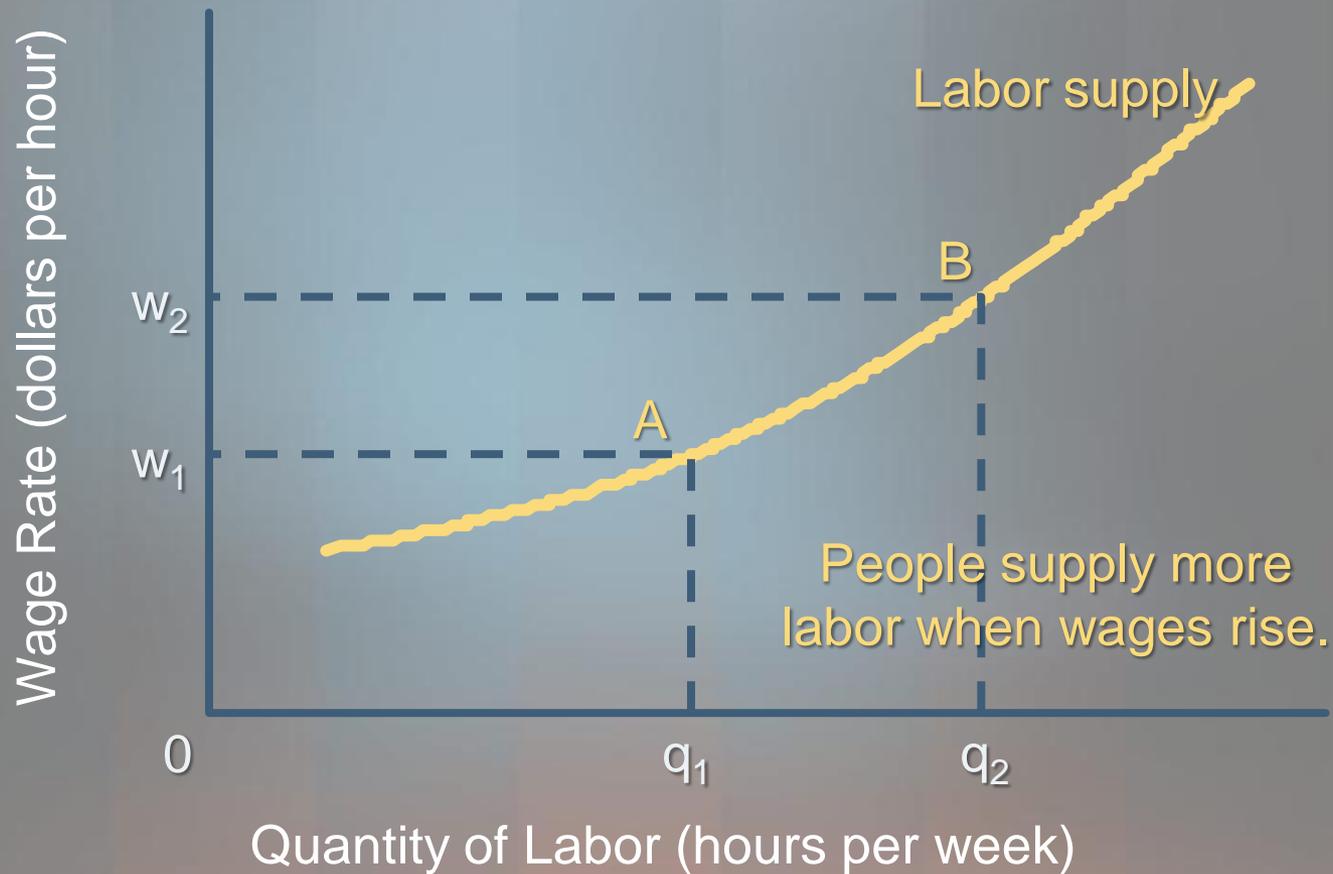
- The **opportunity cost of working** is the amount of leisure time that must be given up in the process.
- Higher wage rates are needed to compensate for the increasing opportunity cost of labor.
- The **marginal utility of income** may decline as you earn more.

# Income vs. Leisure



- The upward slope of an individual's labor-supply curve is a reflection of two phenomena:
  - the increasing opportunity cost of labor as leisure time declines.
  - the decreasing marginal utility of income as a person works more hours.

# Chart: The Supply of Labor



# A Backward Bend?



- Higher wages represent more goods and services and thus induce people to substitute labor for leisure.
- **Substitution Effect of Wages** – An increased wage rate encourages people to work more hours (to substitute labor for leisure).

# A Backward Bend?



- A worker might also respond to higher wage rates by working less, not more.
- **Income Effect of Wages** – An increased wage rate allows a person to reduce hours worked without losing income.



Long Work Hours Associated with Poorer Mental Skills and Short-Term Memory Loss

# A Backward Bend?



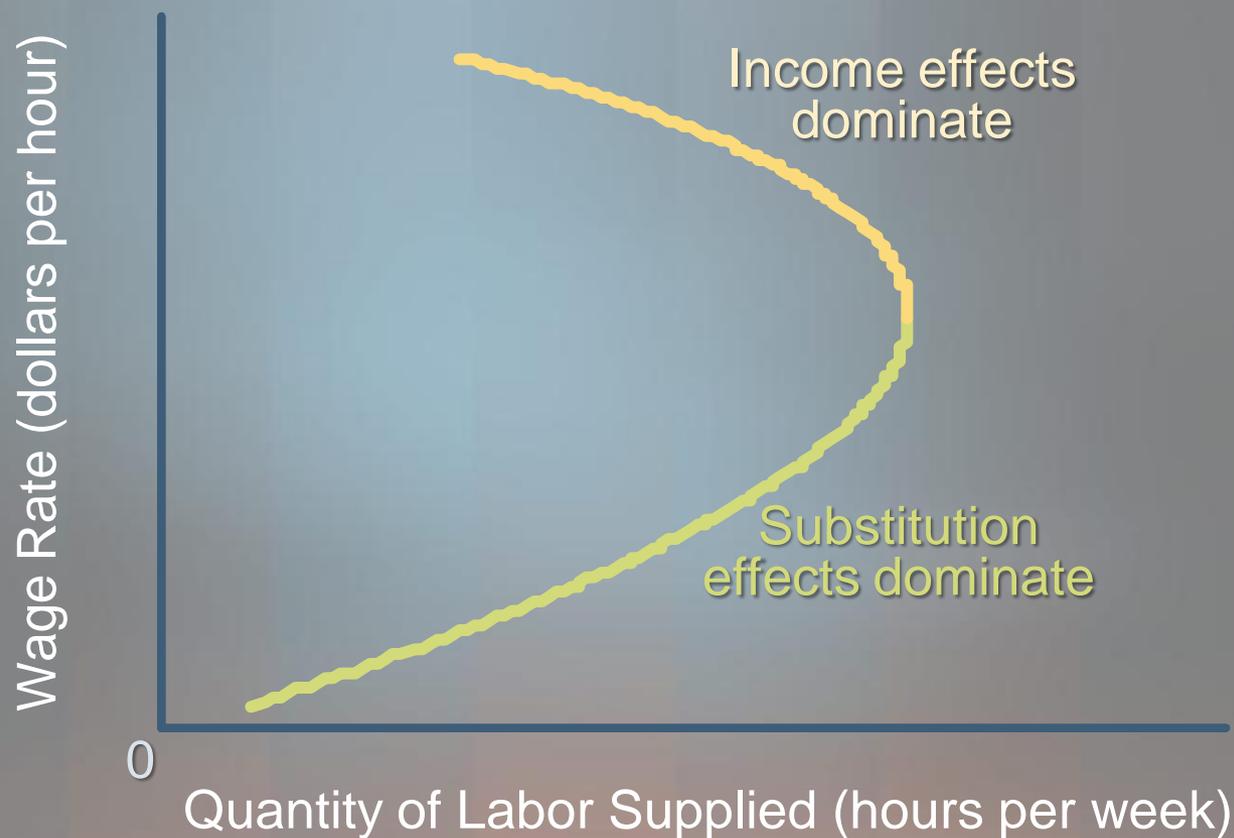
If income effects outweigh substitution effects, an individual will supply less labor at higher wages.

**Wages** – paid to blue-collar employees on a daily, weekly or monthly basis to employees whose jobs can be measured in terms of money's worth

**Salary** – paid to white-collar employees; usually paid on monthly basis to employees whose contribution cannot be measured easily

**Compensation** – a comparative term; includes wages and all other allowances and benefits. (e.g. allowances, leave facilities, housing, travel and non-cost such as recognition, privileges and symbols of status)

# Chart: The Backward-Bending Supply Curve



# Market Supply of Labor



The **market supply of labor** is the total quantity of labor that workers are willing and able to supply at alternative wage rates in a given time period, *ceteris paribus*.

Winding Down the Work Week

How The Average American Work Week Compares  
To The Rest Of The World

# Market Supply of Labor



- The labor supply curve shifts when the **determinates of labor supply** change.
  - tastes – for leisure, income and work
  - income and wealth
  - expectations – for income or consumption
  - prices of consumer goods
  - taxes

# Shifts in Market Supply

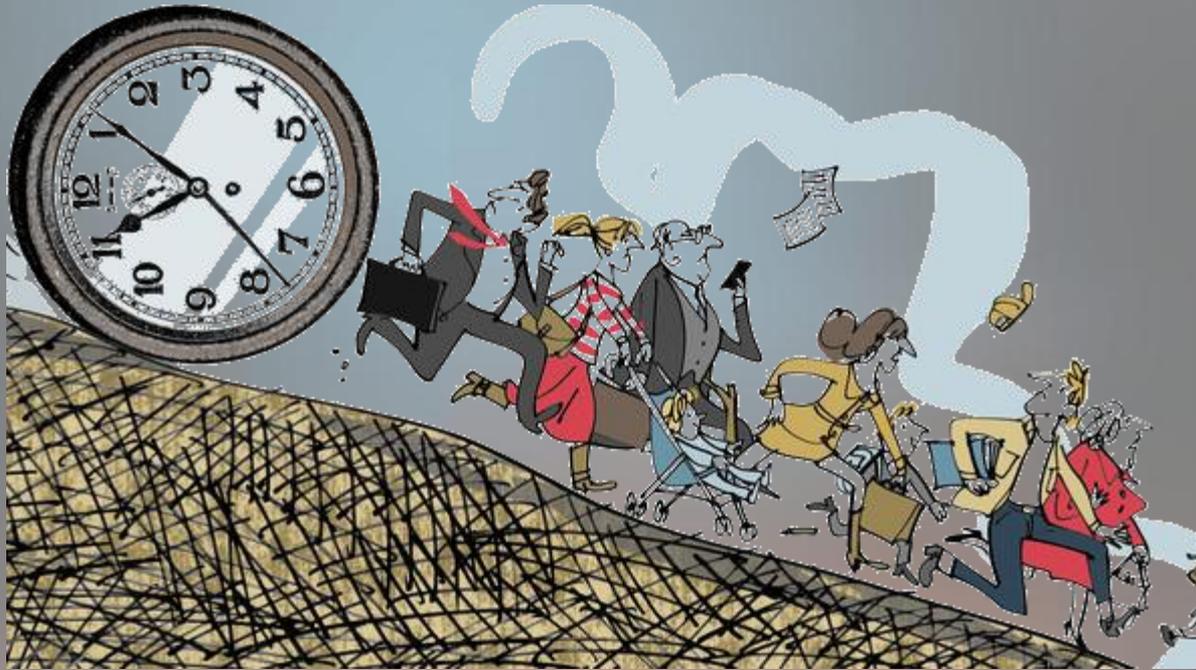


- Over time, the labor supply curve has shifted leftward resulting in:
  - a rise in living standards.
  - income transfer programs that provide economic security when not working.
  - increased diversity and attractiveness of leisure activities.

# Elasticity of Labor Supply



We use the concept of **elasticity** to measure the movements along the labor supply curve resulting from wage rate changes.



Why is everyone so busy?

# Elasticity of Labor Supply



The **elasticity of labor supply** is the percentage change in the quantity of labor supplied divided by the percentage change in wage rate.

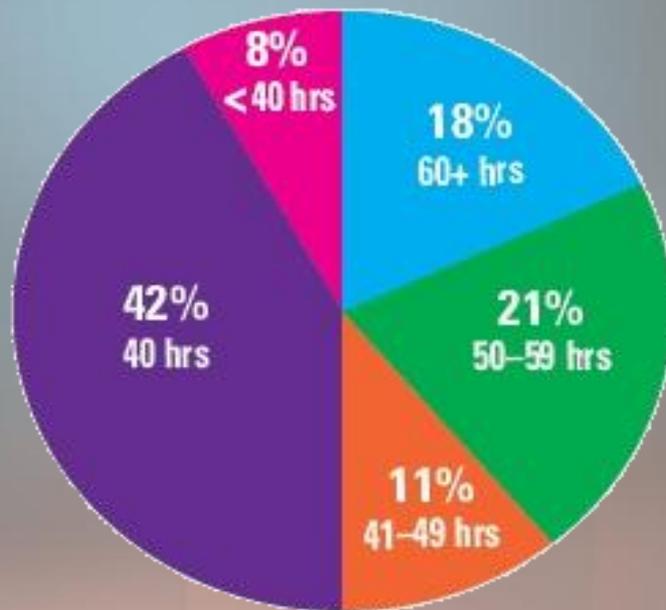
$$\frac{\text{elasticity of labor supply}}{\text{labor supply}} = \frac{\% \text{ change in quantity of labor supplied}}{\% \text{ change in wage rate}}$$

# Institutional Constraints



A worker's responsiveness to wage changes is often constrained by institutional constraints such as specified work hours, 8 – 5 shifts.

Average hours worked by U.S. adults



Source: Gallup Work and Education Survey, August 2014

# Demand for Labor



The **demand for labor** is the quantity of labor employers are willing and able to hire at alternative wage rates in a given time period, *ceteris paribus*.

# Derived Demand



- The quantity of resources purchased by a business depends on the firm's expected sales and output.
- The quantity of resources purchased by a business is a derived demand.

# Derived Demand



**Derived demand** is the demand for labor and other factors of production resulting from (depending on) the demand for final goods and services produced by these factors.

In other words, the demand for labor depends on the demand for final goods and services.

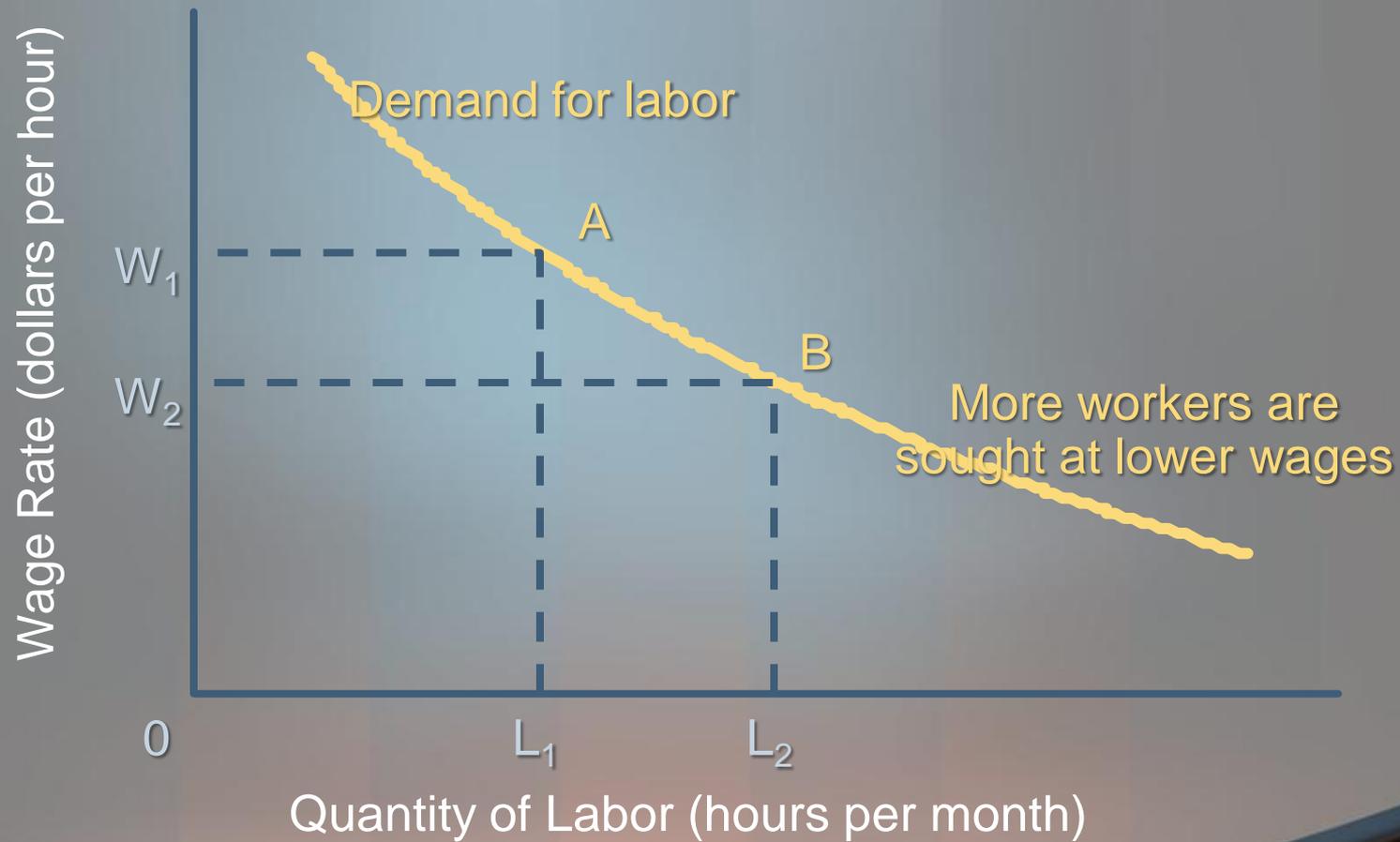


# The Labor-Demand Curve



- However, the number of workers hired is not *completely* dependent upon the demand for the product or service.
- The quantity of labor demanded also depends on its **price** (the **wage rate**).

# Chart: The Demand for Labor



# Marginal Physical Product



Marginal physical product (MPP) is the change in total output associated with one additional unit of input.

$$\frac{\text{marginal physical product}}{\text{change in quantity of labor}} = \frac{\text{change in total output}}{\text{change in quantity of labor}}$$

# Marginal Revenue Product



**Marginal revenue product (MRP)** -- the change in total revenue associated with one additional unit of input

$$\frac{\text{marginal revenue product}}{\text{change in quantity of labor}} = \frac{\text{change in total revenue}}{\text{change in quantity of labor}}$$

$$\text{MRP} = \text{MPP} \times p$$

# Marginal Revenue Product



The marginal revenue product sets an upper limit to the wage rate an employer will pay.

# Diminishing MPP



The marginal physical product of labor eventually declines as the quantity of labor employed increases.



Law of Diminishing Returns

# The Law of Diminishing Returns

According to **the law of diminishing returns**, the marginal physical product of a variable factor declines as more of it is employed with a given quantity of other (fixed) inputs.

For example, if you have a specific number of work stations (fixed input) and you continue to hire more workers (variable input), your MPP will begin to decline.

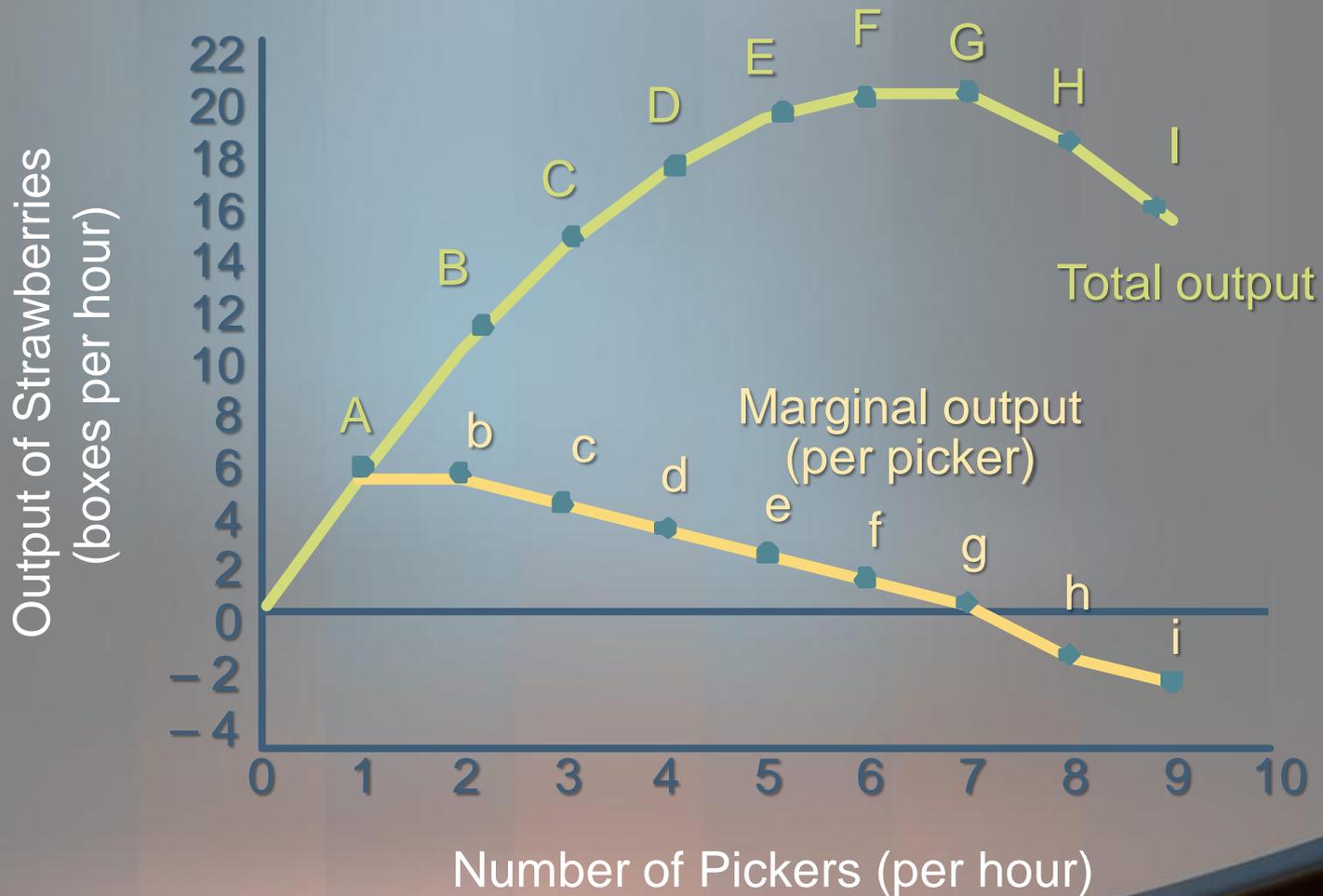


# Table: The Law of Diminishing Returns



Units of Labor	Total Output	Marginal Physical Product
0	0	—
1	5	5
2	10	5
3	14	4
4	17	3
5	19	2
6	20	1
7	20	0
8	18	-2
9	15	-3

# Chart: The Law of Diminishing Returns



# Diminishing MRP



As marginal *physical* product diminishes, so does marginal *revenue* product.

# Table: Diminishing MRP



Units of Labor	Total Output	Price	Total Revenue	Marginal Revenue Product
0	0	\$2	\$ 0	—
1	5	2	10	\$10
2	10	2	20	10
3	14	2	28	8
4	17	2	34	6
5	19	2	38	4
6	20	2	40	2
7	20	2	40	0
8	18	2	36	-4
9	15	2	30	-6

# The Hiring Decision



Marginal revenue product determines how much labor will be hired.



# Continued in The Labor Market Part II



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