## Market for Factors of Production

ECO 120: Global Macroeconomics



- Specific goals:
  - Understand how quantities of factors of production are determined.
  - Understand how prices of factors of production are determined.
  - Understand what determines factor income.
  - Focus on labor and capital.
- Learning objectives:
  - LO 10: Predict how savings, investment decisions, and policies influence capital stock and long-run production possibilities.



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- Labor markets: Hubbard and O'Brien, pages 500-510 -Available on D2L.
- Investment/Saving market: Module 29, pages 277-282.



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  - Interest earned by renting capital.
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- Total Product: total level of production of the final good.
- Marginal Product (MP): additional level of production attained when hiring one additional unit of labor/capital/land.
- Total Revenue: total amount of revenue earned on selling the final good.
- Marginal Revenue (MR): additional revenue earned by producing one additional unit of the final good.
- Marginal Revenue Product (MRP): the additional revenue earned by hiring one additional unit of a factor of production.
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- Law of Diminishing Marginal Product a.k.a. Law of Diminishing Returns: the marginal product decreases as you hire additional units of a factor of production.
- What is the shape of the marginal product curve?
- Shape of marginal revenue curve: depending on the type of market, as output increases marginal revenue may decrease or may stay the same (but it does not increase).
- What is the shape of the marginal revenue product curve?



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Suppose a company's production schedule is as given below. Suppose also the company has a constant price for its product at \$3 per item.

Labor	Quantity
0	0
2	16
4	28
6	36
8	40

Compute the total revenue, marginal revenue, marginal product, and marginal revenue product for each given level of production.

- If MRP > wage, would you be interested in hiring more or less labor?
  - If you did this, what would happen to MRP?
- If MRP < wage, would you be interested in hiring more or less labor?
  - If you did this, what would happen to MRP?
- Profit maximizing choice for labor demand: MRP = wage.
- Since the MRP curve tells us labor demand for each wage, it is the labor demand curve.

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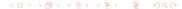
- When something besides the price of the factor of production affects the marginal revenue product, the demand for a factor of production changes.
- Changes in the demand for the final good (changes MR)
- Changes in the quantities of other factors of production can change the MP.
  - An increase in capital makes labor more productive (increase in K increases MP<sub>L</sub>).
  - An increase in employment makes capital more productive (increase in L increases MP<sub>K</sub>).
- Changes in technology.



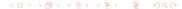
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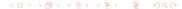
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- Think of all your time as either leisure or labor.
- Think of leisure as a "good" that you purchase. Any leisure not purchased is time you are working.
- What is the price (or opportunity cost) of leisure?
  - What is the substitution effect on leisure when the price of leisure increases?
- Leisure is a normal good.
  - What is the income effect for leisure when the wage increases?
- What will be the overall effect of the wage on labor supply?
  Will labor supply be upward sloping or downward sloping?



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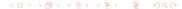


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- Investment spending today determines the amount of capital in the future.
- Investment typically involves very large expenditures. How do you think investment is funded?
- Demand for investment (future capital) depends on expected future marginal product of capital and expected future marginal revenue.
- What things can shift demand for capital?
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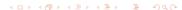
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- Saving supply curve: How household saving responds to interest rate.
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- It is expected that there will be an increase in demand for final goods across the economy.
- There is an increase in average income.
- There is an increase in average income and it is expected to continue to increase in the future.
- A hurricane destroys large amounts of capital stock in the Gulf of Mexico region.



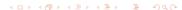
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