The Labor Market

Labor Market

- Demand for Labor is a function of productivity, price, and wages.

Labor Market

Productivity of Labor is influenced by

- Capital (equipment & structures)
- Technology (organization of work)
- Skills/Educational/Experience of worker
- Management (the good, bad and the ugly)
- Worker health

Labor Market

Measures of Labor Productivity

- MPL= Δ output / Δ labor
- APL = output / labor
- Both APL and MPL tend to decline as more labor is hired.

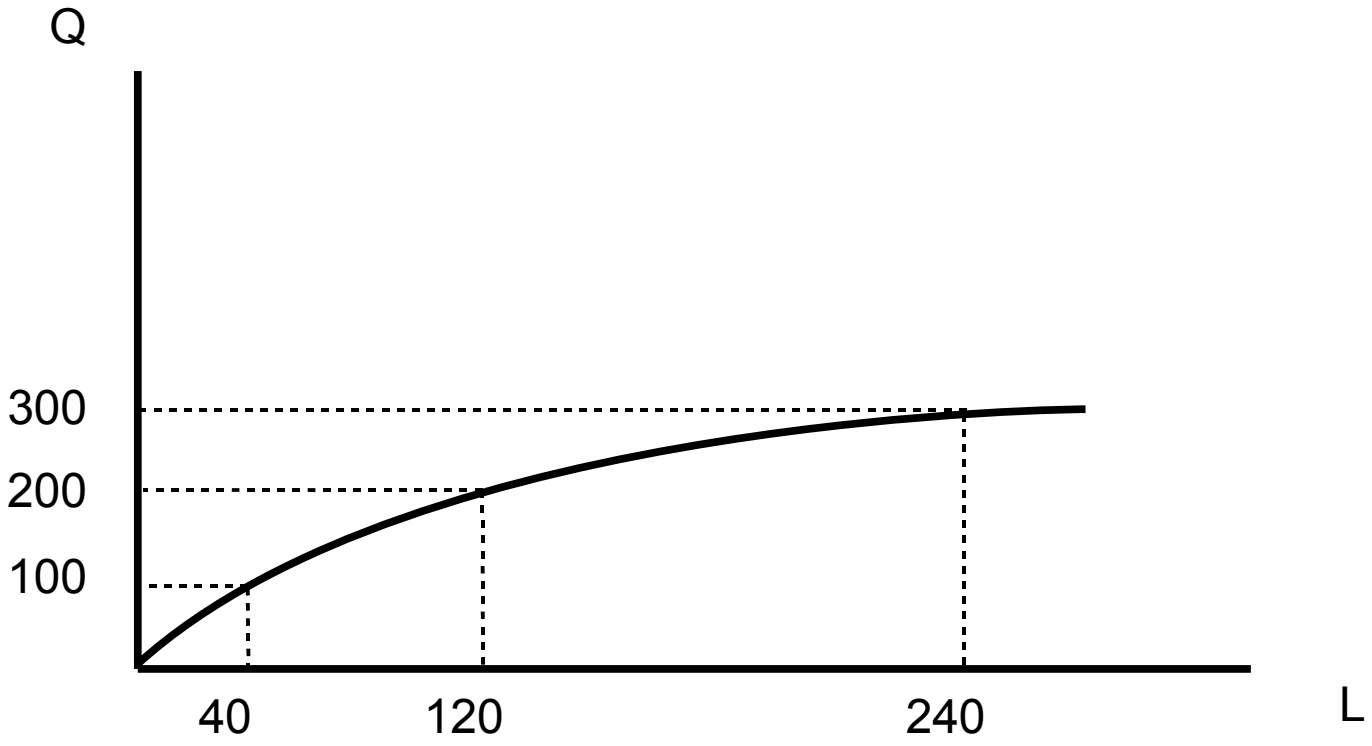
Factor Market

- The following slides illustrate one set of relationships with numeric data and graphs.

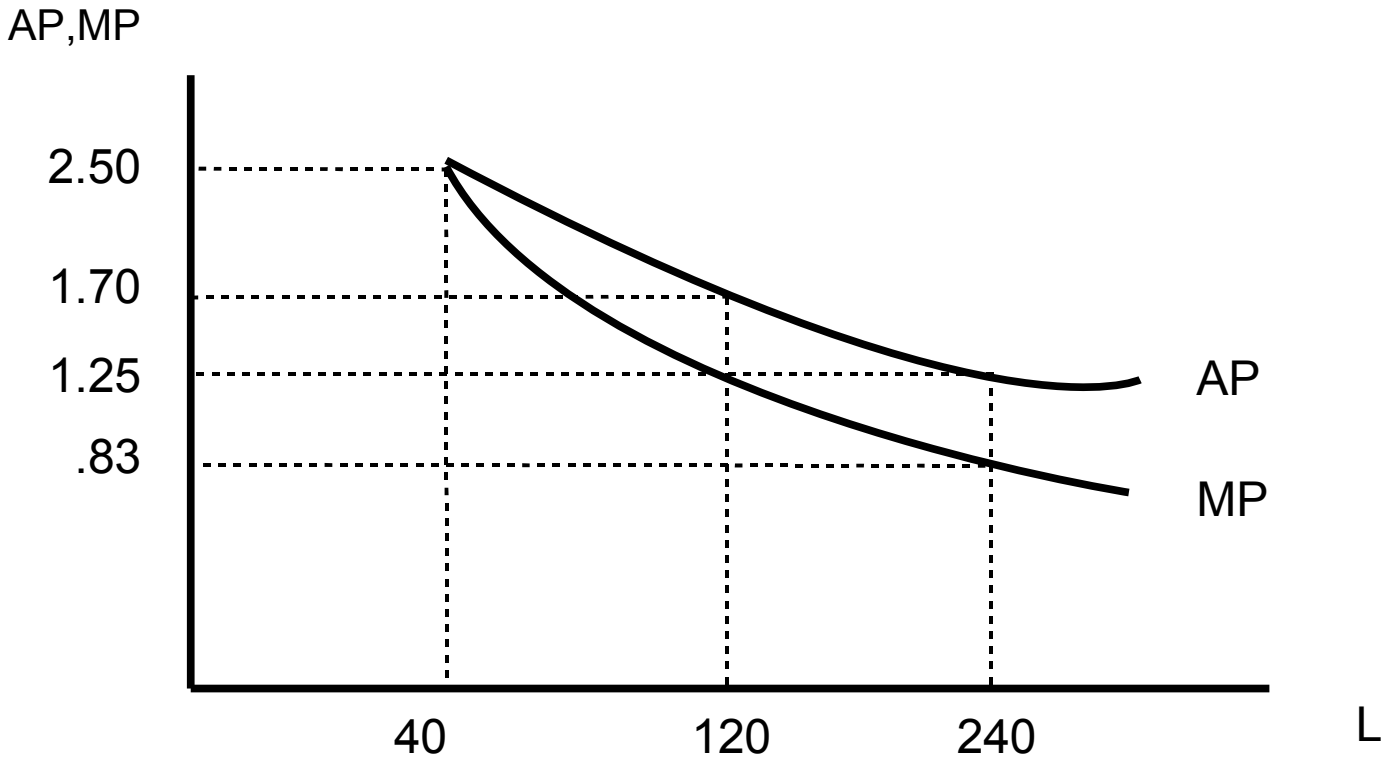
Factor Market

Q	L	APL	MPL
100	40	2.5	2.5
200	120	1.7	1.25
300	240	1.25	.83
400	400	1.00	.63

Factor Market



Factor Market



Labor Market

Because the demand for factors is a derived demand, we must consider two variables:

- the market the firm sells in (the product market)
- the market the firm buys in (the factor market).

Labor Market

- Supply of Labor is a function of population, wages, and the work-leisure decision.

Labor Market

- Labor's key assumptions are mobility and flexibility.
- Mobility in a geographical sense as well as moving into differing jobs.
- Flexibility as in the ability to perform different tasks.

Labor Market

Decision Rule for hiring Labor

- THE generic rule: Hire until MRP = MFC.
- MRP = Marginal Revenue Product
- MFC = Marginal Factor Cost

Labor Market

Marginal Revenue Product (MRP)

- MRP = Marginal Product * Marginal Revenue, MP * MR.
- It represents the revenue associated with hiring one more unit of labor.
- Increasing (decreasing) productivity causes the MRP curve to shift to the right (left).

Labor Market

Marginal Revenue Product (MRP)

- MRP is downward sloping because MP decreases as input increases. Note that in a monopolistic market that MR can also decrease.

Labor Market

Marginal Revenue Product (MRP)

- In a competitive product market the calculation of MRP changes slightly to MPL * P. But note that P = MR in a competitive market. Sometimes it is relabeled as VMP which is the Value of the Marginal Product.

Labor Market

Marginal Factor Cost (MFC)

- MFC = Chg in Labor Cost / Chg in Labor
- It represents the additional cost associated in hiring an additional unit of labor.

Labor Market

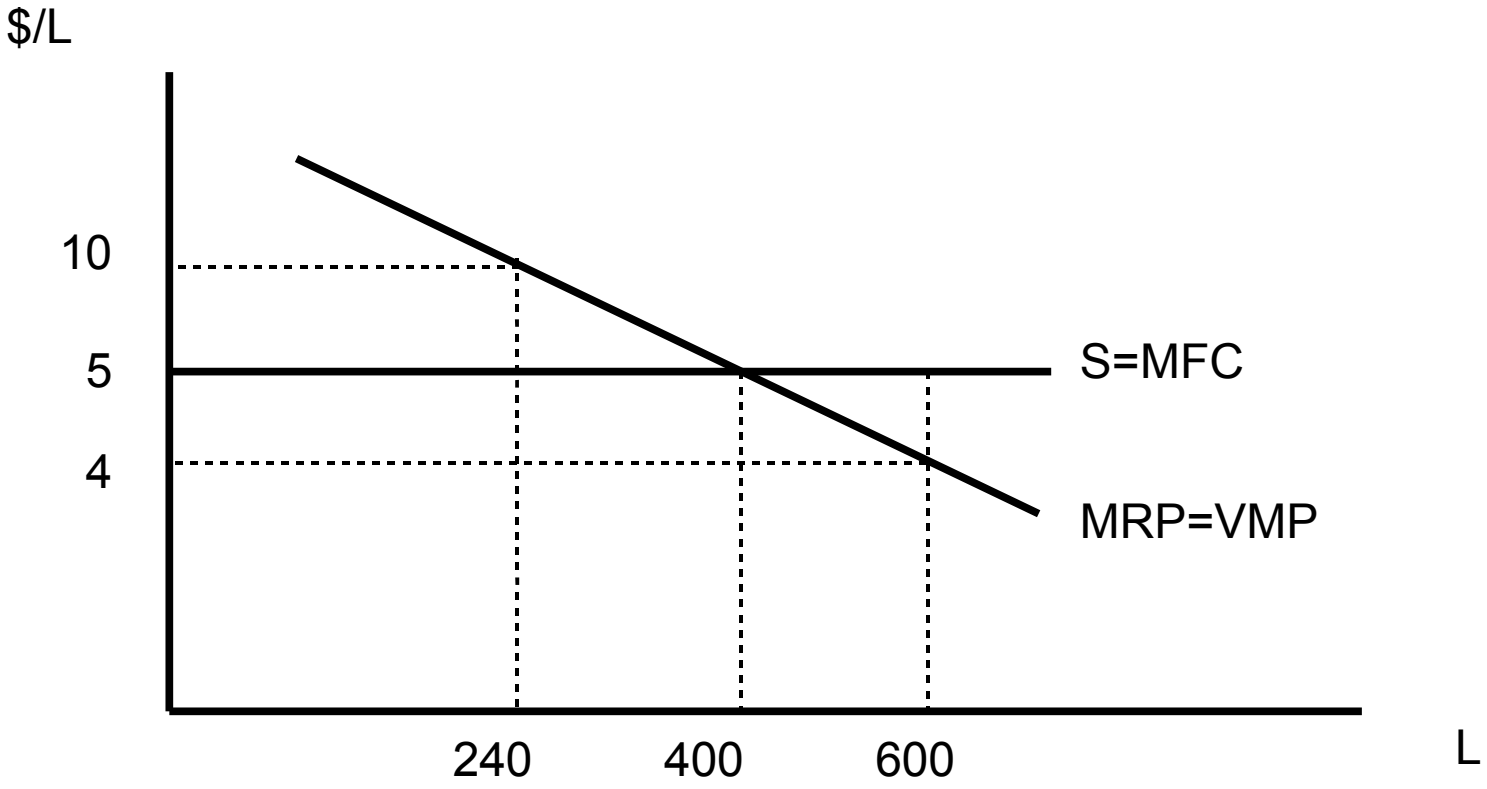
- In a competitive product market, a firm facing a competitive factor market will hire labor to the point where MRP = MFC.
- Note that in a competitive product market, VMP = MRP.
- In a competitive labor market, MFC =W = Supply.

Labor Market

competitive firm/competitive supply

L	MPL	MR	MRP	W
40	2.5	8	20	5
120	1.25	8	10	5
240	.83	8	6.7	5
400	.63	8	5.0	5

Labor Market



Labor Market

- There are two ways to find the optimal production necessary to maximize profit:
  - Find the quantity where MR = MC.
  - Find the labor hired where MRP = MFC.
- In the following slide, we show the equivalence.

Labor Market

competitive firm/competitive supply

P	Q	TR	L	W	VC	MC	Profit
8	100	800	40	5	200	2	600
8	200	1600	120	5	600	4	1000
8	300	2400	240	5	1200	6	1200
8	400	3200	400	5	2000	8	1200
8	500	4000	600	5	3000	10	1000

Labor Market

- An important computational note! You may notice that two entries have the same profit. This is because we are computing profit over an interval, not a point. As a matter of convention, we shall assume profit is maximized at the endpoint of the interval.

Labor Market

- In a competitive labor market, the firm can hire hire as much labor as they need at the market wage rate, w.
- Therefore, the Labor Supply line is horizontal and is equal to MFC.

Labor Market

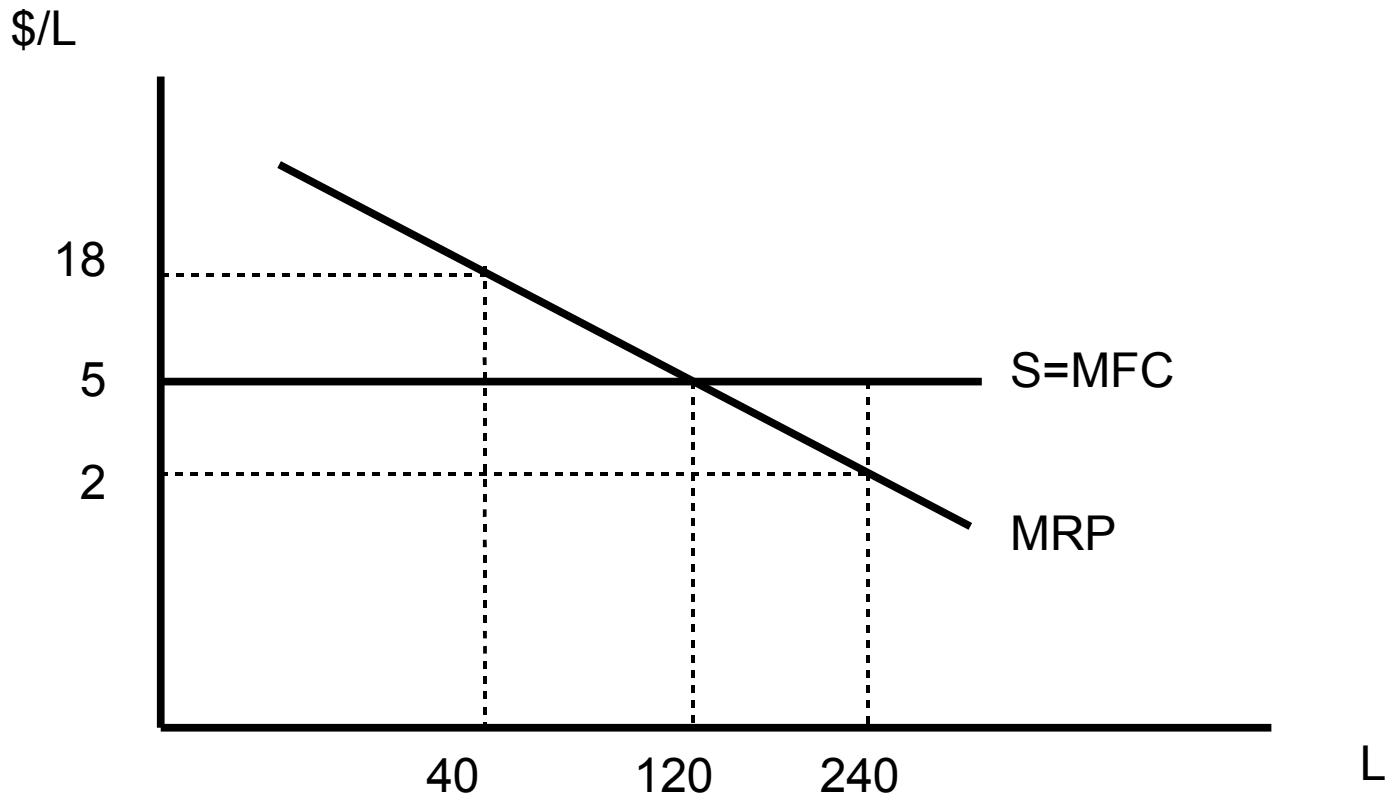
- In the following slide, we have a monopolistic firm in the product market hiring in a competitive labor market.
- The basic difference here is that the firm hires less compared to a competitive firm.

Labor Market

monopolistic firm/competitive supply

L	MPL	MR	MRP	W
40	2.5	7.2	18	5
120	1.25	4.0	5	5
240	.83	2.4	2	5
400	.63	0	0	5

Labor Market



Labor Market

- In a labor market where the firm faces the labor market supply curve, then to induce more labor to be supplied, the wage rate must be raised, not only to new labor but also existing labor.
- As a consequence, MFC increases at a faster rate than the upward sloping supply line. MFC > W.

Labor Market

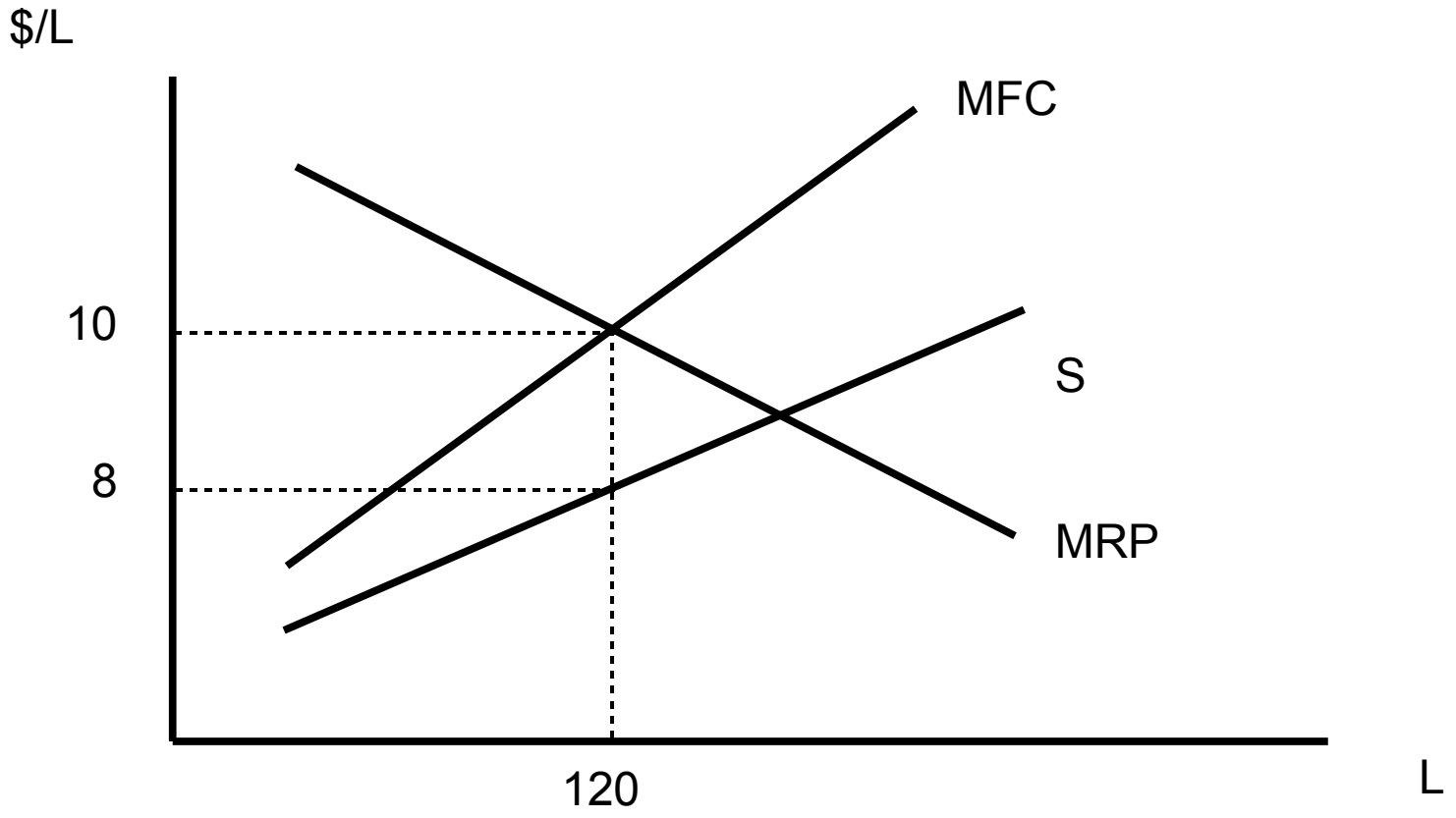
- In the following slide we have an example of a competitive firm in the product market but it is facing the market supply curve.
- Consequently, to lure more workers, it must pay a higher wage, not only to the new workers but also to the existing workers. Cost of hiring exceeds wage.

Labor Market

competitive firm/monopolistic supply

L	MPL	MR	MRP	MFC	TFC	W
40	2.5	8	20	4	160	4
120	1.258	10	10	960	8	
240	.838	6.7	14	2400	10	
400	.638	5.0	15	4800	12	

Labor Market



Labor Market

- A monopolistic firm hires less labor than a competitive firm in the labor market.
- That is because MRP < VMP.

Labor Market

- When a monopolistic firm faces a union, or any sole supplier of labor, the amount of labor hired is indeterminate.
- Game theory must be used to establish conditions under which the parties may reach an agreement.

Labor Market

Summary

Competitive Product Market	Monopolistic Product Market
MR = P = MC	P < MR = MC
Competitive Factor Market	
VMP = MRP	VMP > MRP
MRP = MFC	MRP = MFC
MFC = W	MFC = W
Monopolistic Factor Market	
MFC > W	Indeterminate

Labor Market

The work-leisure decision

- Workers must make the decision as to how much they want to work and how much leisure time they want.

Labor Market

The work-leisure decision

- The work-leisure decision is a function of wages and preferences.

Labor Market

The work-leisure decision

- An change in the wage has two effects:
  - An income effect
  - A substitution effect

Labor Market

The work-leisure decision

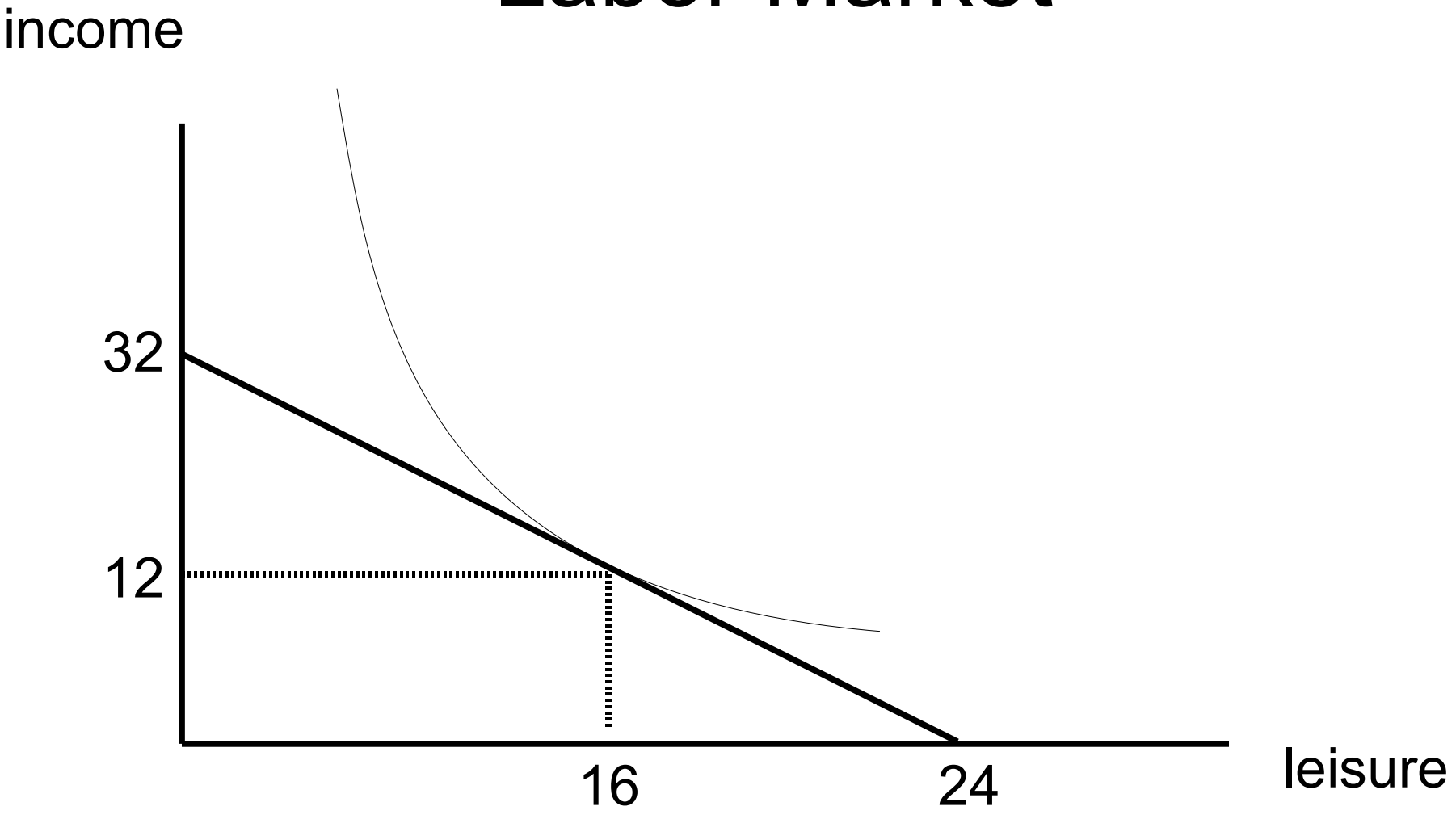
- For an increase in the wage the income effect is consume (in essence, buy) more leisure.
- Leisure is an income normal good and as income rises we buy more of it.

Labor Market

The work-leisure decision

- For an increase in the wage the substitution effect is consume less leisure.
- Leisure becomes more expensive as each hour has a higher opportunity cost, the wage rate.

Labor Market



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