

Producers

Workers	Total Output	Average	Marginal
0	0		
1	40	40	40
2	70	35	30
3	90	30	20
4	100	25	10

At a wage of \$11, what is the profit-maximizing number of workers? At a wage of \$25?

Workers	Total Output	Wage Bill (Wage = \$11)	Profit (wage=11)	Wage Bill (Wage = 26)	Profit (Wage=26)
0	0	0			
1	40	11	29	25	15
2	70	22	48	50	20
3	90	33	57	75	15
4	100	44	56	100	0

As city booms, poor get poorer; Austin's wage gap could bring rise in crime, sickness, economists say; Bill Bishop; 01-02-2000

Let the free market run its course; Stephen Bronars; 01-23-2000

Wage debate looms large as key issue: Employers say plan affects Austin less than other areas because of high employment, wages; R. A. Zaldivar, Tim Green; 01-26-1995

Make work pay by raising minimum wage; ROBERT B. REICH; 03-22-1995

Wage issue has ties to inflation, welfare; Minimum wage's classic battle; Clinton says increase is needed; opponents say raise is inflationary; Jerry Mahoney; 02-10-1996

Republican minimum wage bill faces veto: Clinton accuses GOP of tacking unacceptable tax breaks for special interests onto measure; David E. Rosenbaum; 11-10-1999

House passes bill raising minimum pay; Increase gives Democrats biggest victory since GOP took over House;

Adam Clymer; 05-24-1996

All Americans pay for frozen minimum wage; DAVE McNEELY; 01-30-1996

Wage increase mired in greed; MOLLY IVINS; 05-01-1996

Lawmakers approve rise in minimum wage; Congress passes a variety of measures in a productive day before the break; Eric Schmitt; 08-03-1996

Senate approves minimum wage hike: Measure raises pay to \$5.15 an hour by next year and includes tax cuts for small businesses; Eric Schmitt; 07-10-1996

Austin split on effects of wage increase: Many employers say proposed hike is overdue; others say they would cut jobs; Earl Golz, Tim Green; 02-04-1995

Warm Up Exercises

Worker: You can take a job, or remain unemployed. You receive a payment for unemployment – the reservation wage.

Think of the reservation wage as the value of in-home production (raising worms for fun and profit, sale of illegal substances), plus unemployment payments.

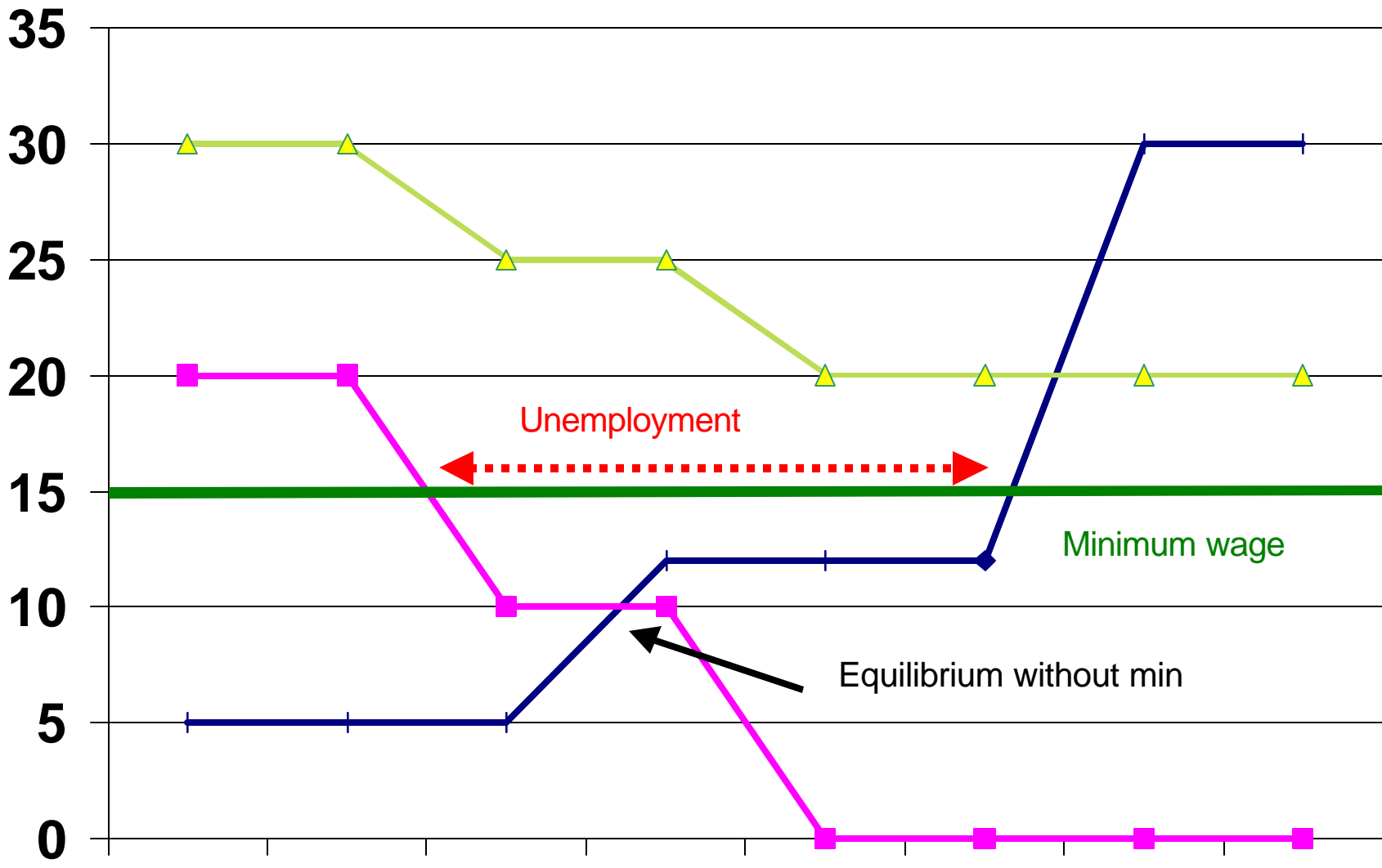
Fill in “self” on your employment record if you do not work for someone else.

If your reservation wage is 12, and you obtain employment for 10, what are earnings? Are you better off working?

Employers: Your sheet provides the payments associated with the number of workers.

Workers	Output	Average	Marginal
1	20	20	20
2	30	15	10

At a wage of 21, how many should you hire? At a wage of 19? 14? 11? 9?



Experiment 5 Insights

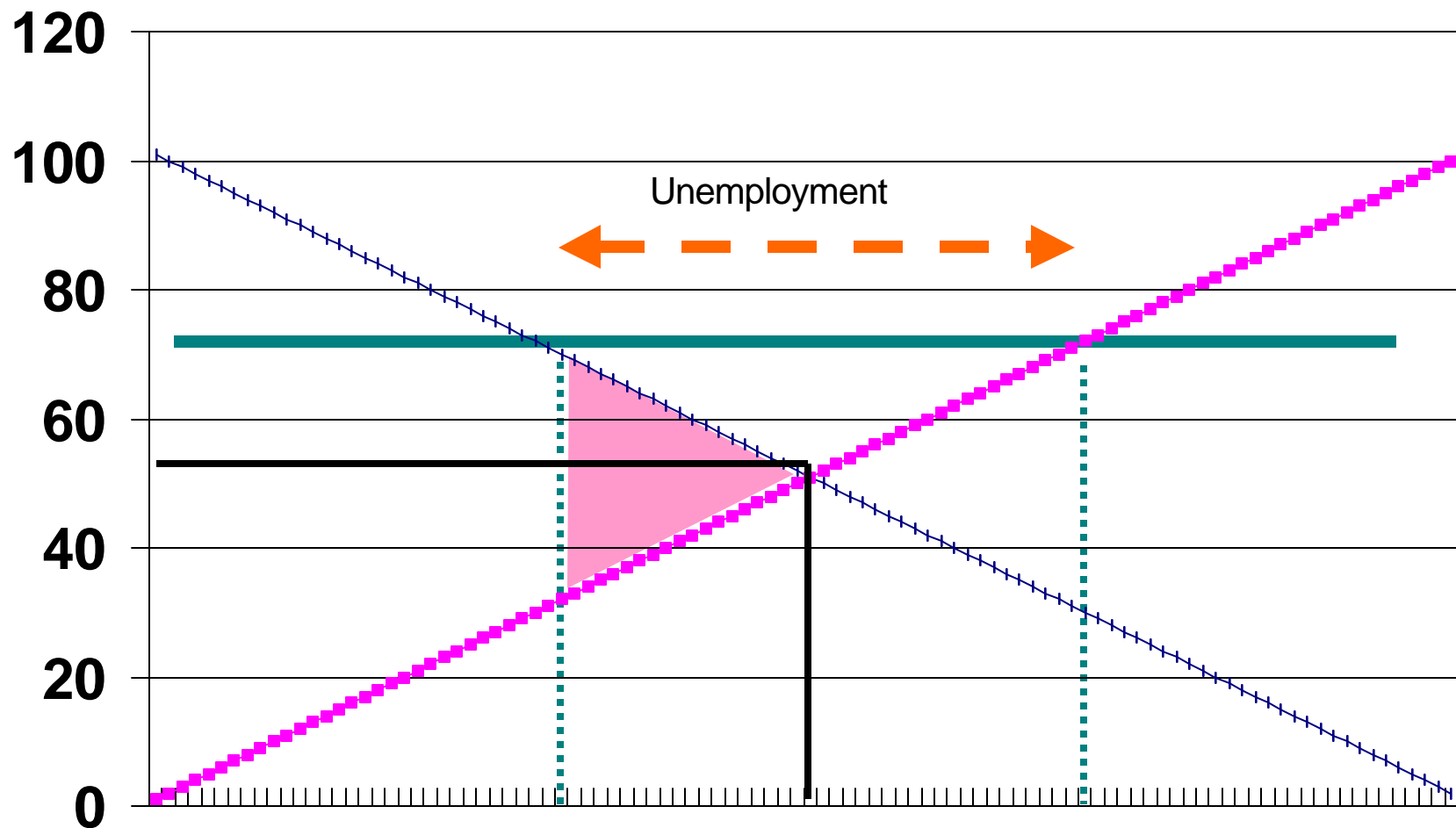
1. Hire an additional person if their marginal contribution to revenue (known as *marginal revenue*) exceeds their wage.

Example:

Number of Workers	Total Revenue	Average Revenue	Marginal Revenue
0	0	-	--
1	30	30	30
2	55	27.5	25
3	75	25	20
4	90	22.5	15

At a wage of 18, the profit-maximizing number of workers is 3. This is because the third worker brings in 20 and costs 18, while the fourth worker brings in 15 and costs 18 - a loss of 3 on this worker.

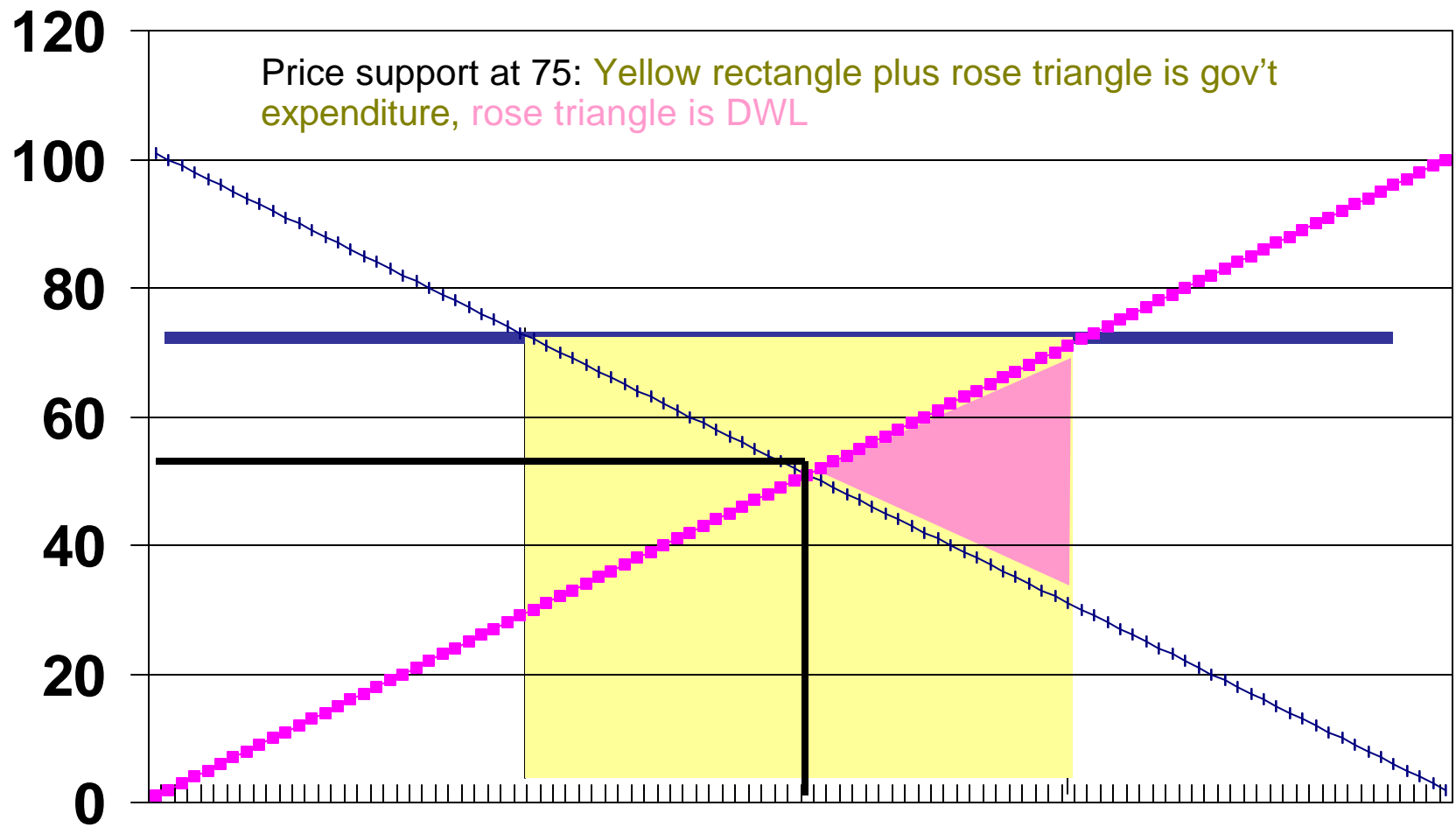
2. If the legal minimum wage exceeds the equilibrium wage, the minimum wage will reduce total employment but increase the number people seeking employment.
3. A minimum wage can either increase or decrease the total wages paid to workers.



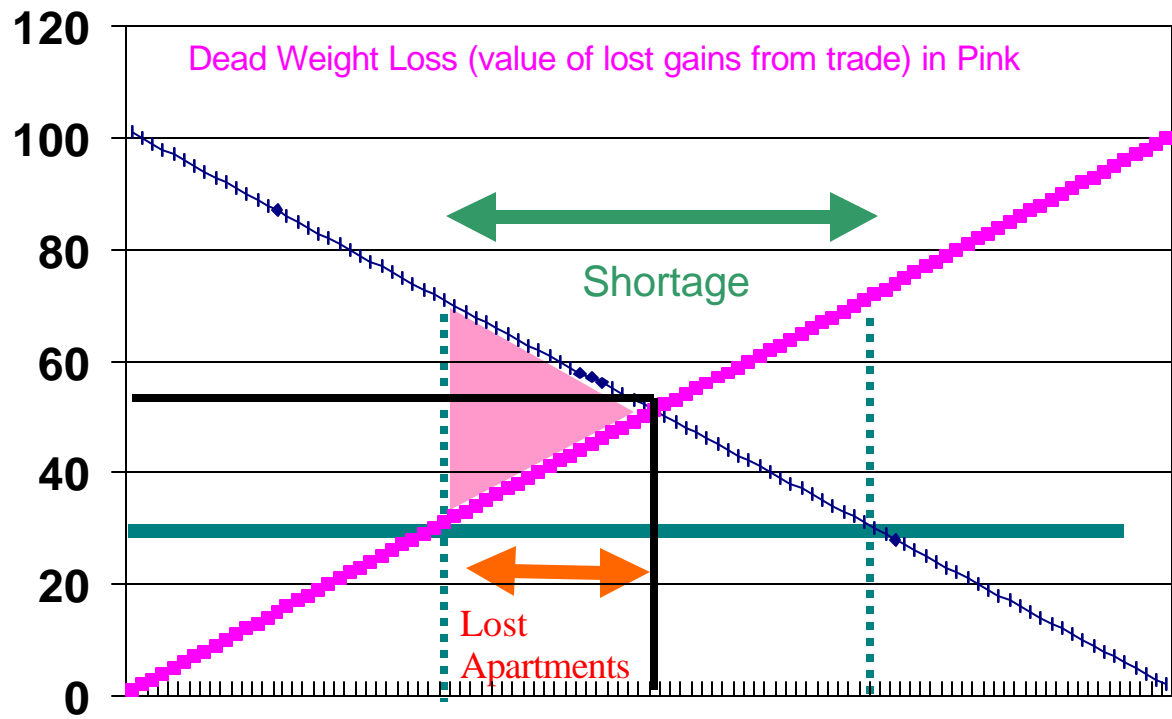
Dead Weight Loss (value of lost gains from trade) in Pink

4. Whether total wages rise depends on the elasticity of demand: total wages rise as the minimum wage rises when demand is inelastic, and total wages fall if demand is elastic.
5. Whether demand is elastic depends in part on the existence of substitutes. Substitutes for low wage workers include labor-saving machinery (e.g. computers), foreign production, and high-skilled workers (who cost more but produce more).
6. There may be both voluntary and involuntary unemployment. Voluntary unemployment represents workers who choose not to work at the going wage, while involuntary employment represents workers who would like a job at the going wage, but can't find one.
7. Even without a minimum wage, there is generally *frictional unemployment* - workers who are unemployed while searching for a job. Usually around 4%.
8. Similar in effect to minimum wages are maximum legal prices, or *price ceilings*. These include rent control, usury laws, and maximum prices on taxi cabs. In the 1970s, the U.S. limited prices on many goods and services. In this case, a shortage occurs (rather than a surplus).
9. As we saw in Experiment 4, attempts will often be made to circumvent price floors and ceilings. Such attempts include bribery, illegal transactions, scalping tickets, "key money" to rent apartments. In addition, with price ceilings, costly efforts are made to secure the good (standing in line, or *queuing*).

10. The effects of minimum wages are related to those of taxation - some profitable trades are prevented. This results in a loss of consumer surplus and producer profits known as the *dead weight loss*.
11. Whenever a market intervention prevents reduces trade below the efficient level (taxes, monopoly price floors and price ceilings all do this), there is a loss of gains from trade.
12. In addition, there may be a transfer from one group to another. With the minimum wage, producer profits fall, but worker revenue may rise - if demand is inelastic. Such an increase is a transfer.
13. However, because of the reduced gains from trade, workers must gain less than employers lose.
14. The size of the dead weight loss depends on the elasticities of demand (price floor) and supply (price ceiling).
15. If demand is very inelastic, the dead weight loss from a price floor is small.
16. A market intervention with a quite different effect is a *price support*. Price supports impose minimum prices like price floors, *but also purchase the surplus*. Cheese has price supports - and the U.S. has warehouses full of cheese as a result.



Consider the imposition of rent control, holding the maximum legal rents below the market equilibrium price. Using a supply and demand diagram, illustrate the dead weight loss, the number of apartments lost, and the size of the shortage in both the long and short run. What activities would you expect to arise to circumvent the rent controls?



Illegal activities include key money and bribes. In addition, various kinds of searching, including reading obituaries, constant seeking, and staying in units that are no longer ideal are expected. Moreover, apartment conversion to condominiums and other means of converting apartments to uncontrolled housing are common.

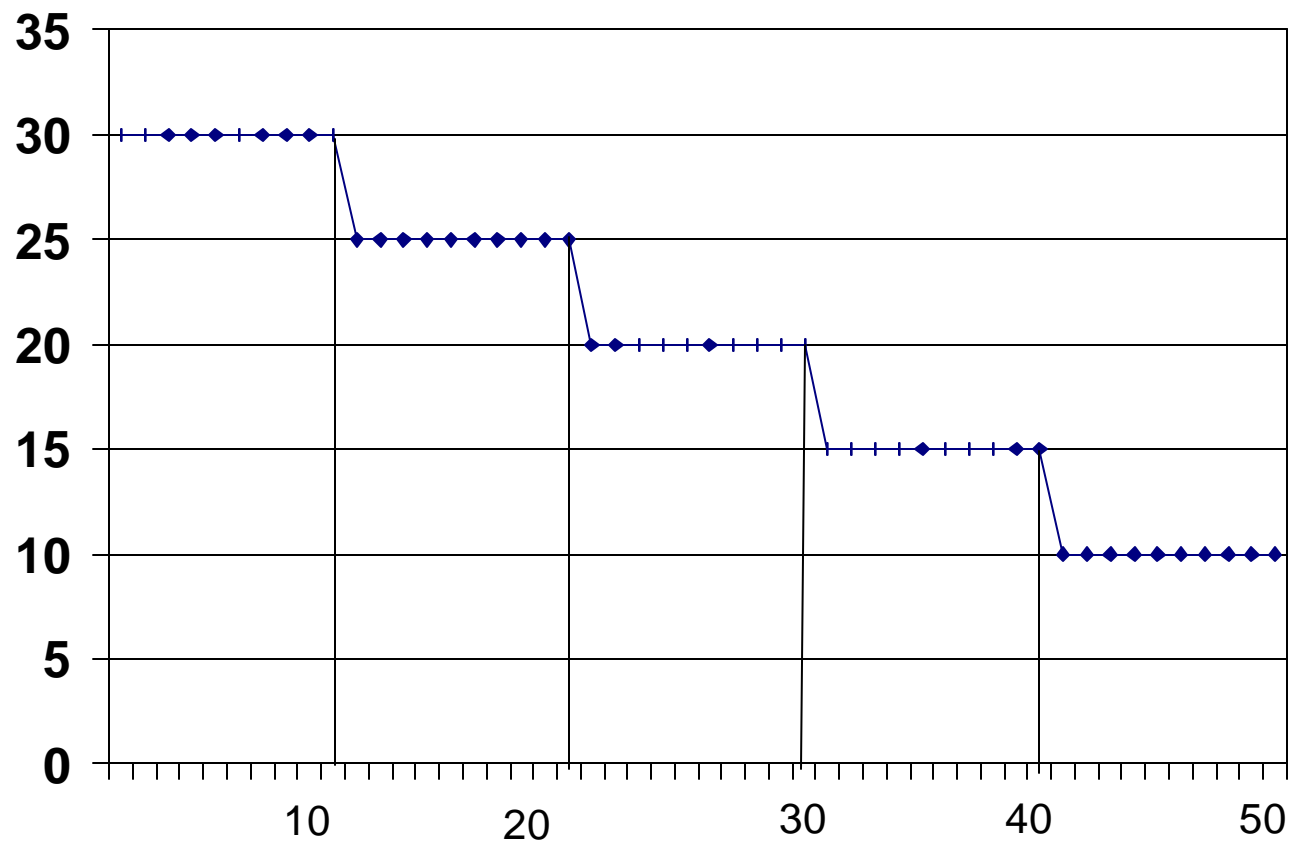
Suppose that employers have the following total revenue.

Number of workers	Total Revenue	Marginal Revenue	Average Revenue
0	-10		
1	20		
2	45		
3	65		
4	80		
5	90		

(i) Fill in the marginal and average revenue from the table.

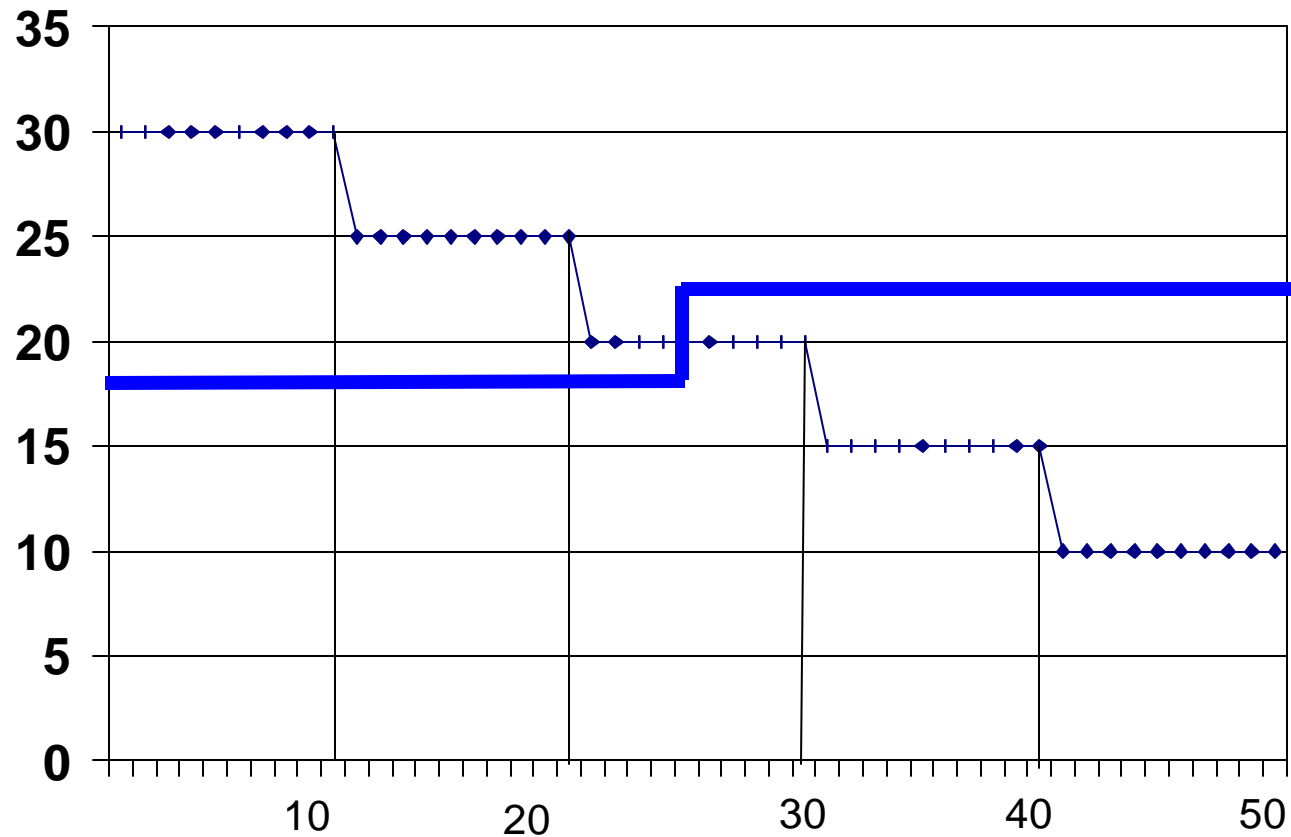
Number of workers	Total Revenue	Marginal Revenue	Average Revenue
0	-10		
1	20	30	20
2	45	25	22.5
3	65	20	21.67
4	80	15	20
5	90	10	18

(ii) Suppose there are ten such employers. Draw the market demand curve, carefully labelling every wage and quantity demanded.



(iii) Suppose there are 25 workers who will work for 22 (that is, they get 22 if they are unemployed), and another 25 who will work for 18. Add the supply curve to the diagram. What is the equilibrium market price and quantity employed? Illustrate in the diagram.

Equilibrium Price: _____ Quantity: _____



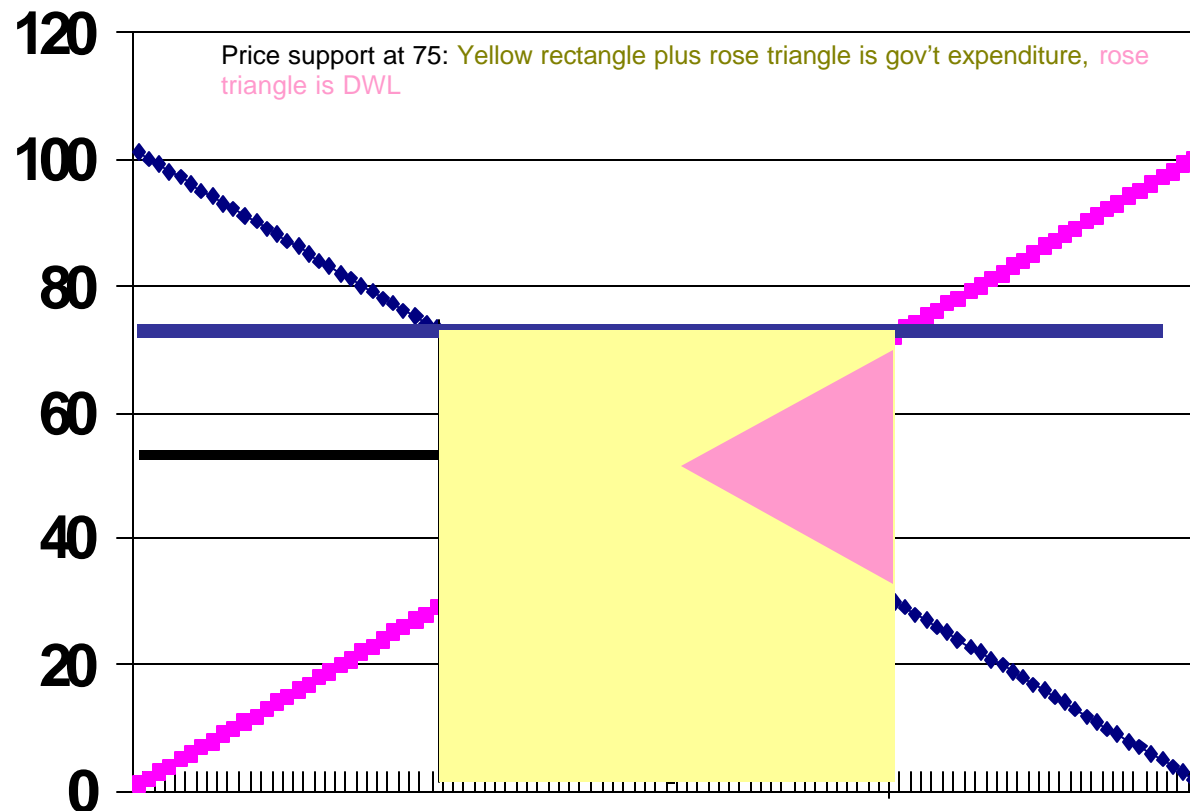
(iv) Suppose a minimum wage of 20 is imposed. What is the level of employment and involuntary unemployment? Illustrate in the diagram.

Voluntary Unemployment: 25 Involuntary Unem. 0

Suppose the government offers a price support above the equilibrium price. (*announced in class that the government doesn't redistribute the surplus*).

(i) What is an example of a price support that is actually used in the United States?
Cheese, peanuts, tobacco.

(ii) Using a supply and demand diagram, illustrate the dead weight loss and the expenditure for the price support



A *Price Ceiling* imposes a maximum price that may be charged. Examples: Rent control, wage and price controls (1970s), oil and natural gas (ended in 1980s), usury laws.

A price ceiling has no effect if the price ceiling is above the equilibrium price. Otherwise, the quantity traded is given by supply.

A *Price Floor* puts a minimum price that may be legally charged. Examples: Minimum wage, some agricultural products, oil in Canada

A price floor has no effect if the price floor is less than the equilibrium price. Otherwise, the quantity traded will be given by demand.

A Price-Floor with government purchase of excess supply occurs on some agricultural products (e.g. cheese). The quantity traded is now given by supply, and if the price floor exceeds the equilibrium price, more is traded than is efficient.

A per-unit or percentage tax shifts reduces supply by the amount of the tax, reducing the quantity traded.

The size of the dead-weight loss depends on the elasticities of demand and supply.

For perfectly inelastic supply, taxes and ceilings floors have no DWL.

For perfectly inelastic demand, taxes and price floors have no DWL.

Price ceilings, floors and taxes are called distortions because they distort economic behavior away from the efficient outcome (maximum gains from trade).

Distortions create incentives for people to create the unrealized gains from trade.

Examples:

Search activity, waiting in line ("queue")

Illegal transactions

In addition, price ceilings and floors may lower the cost of discrimination (example: minimum wage laws).