

Minimum Wage Employment Impact



True or False? Suppose that policymakers have set a binding minimum wage in a labor market that was previously monopsonistic (prior to the minimum wage). A small further increase in the minimum wage in this market will certainly increase employment.



False.

In a **monopsonistic labor market**, the firm has market power in hiring workers and typically employs fewer workers at a lower wage than would occur in a perfectly competitive market. Introducing a **binding minimum wage** can increase employment because it reduces the monopsonist's ability to exploit its market power.

However, a **small further increase in the minimum wage** does not necessarily increase employment. Here's why:

1. Initial Effects of a Binding Minimum Wage:

- If the minimum wage is set below the equilibrium wage of a competitive market but above the monopsonist's wage, it can increase both wages and employment as the monopsonist is compelled to hire more workers at the minimum wage.

2. Higher Minimum Wage Beyond the Optimal Level:

- If the minimum wage is set too high, it can lead to **job losses**, as the firm might reduce employment due to higher labor costs.

3. Critical Threshold:

- There exists a threshold where the positive effects of the minimum wage on employment plateau. Beyond this threshold, further increases may reduce employment.

Therefore, while the initial introduction of a binding minimum wage in a monopsonistic market can increase employment, **a small further increase might not necessarily have the same effect and could potentially decrease employment**, depending on where the current minimum wage is relative to the market equilibrium.



Based on problem and solution above, please construct an engaging narration that explains the core concepts from scratch behind it.

In the explanation, please include the following:

- all relevant fancy terms,
- (if any) all fancy math, formulas, equations and notations,
- tangible examples or quantitative examples (if any),
- some humor.



The Monopsonist and the Minimum Wage: A Tale of Power, Wages, and Worker Revolt

Once upon a time, in the small labor market kingdom of **Econoville**, there lived a **monopsonist**—an employer who was the **sole buyer of labor**. Picture this employer as a wealthy feudal lord, hiring workers to plow the fields, clean the castle, and code software (because, hey, even feudal lords need apps these days). The monopsonist was shrewd and loved profit more than cake, so it hired fewer workers and paid them as little as possible. This is what economists call **wage suppression**.

But why did the workers accept these lousy wages? They had few alternatives—after all, there was only one employer in town. This lack of competition in hiring meant that the monopsonist could exercise **monopsony power** to squeeze workers without fear of losing them to rivals.

The Monopsony Math: How the Evil Feudal Lord Sets Wages

The monopsonist doesn't pay workers what they're worth to society (aka the **marginal revenue product of labor**, or MRP_L), which is the extra revenue a worker generates. Instead, the employer sets wages at the point where its **marginal cost of labor** (MC_L) equals the MRP_L . Here's the nerdy math behind it:

- **Demand for labor:** $MRP_L = \frac{\Delta \text{Total Revenue}}{\Delta \text{Quantity of Labor}}$
- **Supply of labor:** $W = f(L)$, where wages (W) depend on the labor supply (L).
- The monopsonist calculates its marginal cost of labor as:

$$MC_L = W + \frac{\Delta W}{\Delta L} \cdot L$$

Notice the sneaky part: $MC_L > W$. Each additional worker raises the wage for all, so the monopsonist hires fewer workers to keep costs down.

Enter the Minimum Wage

One day, the policymakers of Econoville, tired of seeing workers struggle to afford bread (and Netflix subscriptions), introduced a **binding minimum wage**. This meant the wage floor was set higher than the pitiful amount the monopsonist had been paying but still below the equilibrium wage of a perfectly competitive market.

To the workers' delight, the monopsonist now had to pay the minimum wage W_{min} . But an unexpected twist occurred: instead of firing workers, the monopsonist actually hired **more** workers! Why?

In a monopsony, the minimum wage can act as a **corrective mechanism**. At W_{min} , the monopsonist's marginal cost of labor becomes **flat** up to a certain point (the quantity of labor where MC_L returns to its old formula). By hiring more workers, the monopsonist maximizes profit because it gets closer to the competitive equilibrium.

The "What-If" Problem: Raising the Wage Again

Now, let's imagine the policymakers get greedy for votes and raise the minimum wage even higher. Say W_{min} increases from \$10/hour to \$12/hour. Does this increase employment again?

Not necessarily. If W_{min} surpasses the monopsonist's willingness to pay based on the MRP_L , employment could stagnate—or worse, decrease. The monopsonist might grumble, fire workers, and go back to exploiting the ones left. In Econoville, this could mean fewer jobs and more angry peasants.

A Tangible Example

Let's add some numbers for clarity. Suppose the monopsonist hires workers to produce widgets, with each worker generating \$15 of revenue ($MRP_L = \15). Here's how it plays out:

- Before minimum wage: The monopsonist pays \$8/hour and hires 5 workers. $MC_L = \$12$ at the margin.
- After $W_{\{min\}} = \$10$: The monopsonist hires 7 workers because $MC_L = W_{\{min\}} = \$10$, increasing employment.
- After $W_{\{min\}} = \$12$: Employment stagnates or falls, as W_{min} exceeds the MRP_L for marginal workers.

Humor: The Revolting Peasants

Think of the minimum wage like the peasants in a Disney movie finally storming the castle: "You can't exploit us anymore!" At first, the feudal lord grudgingly complies, hiring more workers to keep the torches and pitchforks away. But if the peasants demand gold-plated chalices as wages, the lord might decide to cut jobs, retire, and start selling NFTs.

The Moral of the Story

The tale of the monopsonist and the minimum wage teaches us that **context matters**. In a monopsonistic market, a binding minimum wage can increase employment up to a point. But beyond that point, it risks backfiring.

So, next time you hear someone claim that raising the minimum wage *always* increases employment, think of Econoville—and remember to check the math before storming the castle.



To reinforce the understanding, please generate some similar problems and show the solutions.



Problem 1: Minimum Wage in a Monopsony with Fixed Marginal Revenue Product

A monopsonist hires workers to produce gadgets, and each worker generates a **marginal revenue product of \$20**. The monopsonist faces the following labor supply curve:

$$W = 8 + 2L$$

where W is the wage in dollars, and L is the number of workers. The marginal cost of labor (MC_L) is derived as:

$$MC_L = 8 + 4L$$

1. **Question 1.1:** How many workers does the monopsonist hire and what wage does it pay if there is no minimum wage?
2. **Question 1.2:** If the government sets a binding minimum wage of \$16, how many workers does the monopsonist hire now?

Solution to Problem 1

Step 1: Find the profit-maximizing condition for the monopsonist without a minimum wage.

The monopsonist hires workers where $MC_L = MRP_L$. Setting $MC_L = MRP_L$:

$$8 + 4L = 20$$

$$4L = 12 \Rightarrow L = 3$$

To find the wage W , substitute $L = 3$ into the labor supply curve:

$$W = 8 + 2(3) = 14$$

Thus, the monopsonist hires **3 workers** at a wage of **\$14/hour**.

Step 2: Introduce the binding minimum wage.

With a minimum wage of \$16, the monopsonist now faces a **flat marginal cost of labor** $MC_L = 16$ up to the point where L makes $W > 16$ on the labor supply curve.

Set $W = 16$ in the labor supply curve to find the corresponding L :

$$16 = 8 + 2L$$

$$2L = 8 \Rightarrow L = 4$$

Thus, the monopsonist hires **4 workers** at a wage of **\$16/hour**.

Problem 2: Increasing the Minimum Wage Further

Continuing from Problem 1, suppose the government raises the minimum wage to \$22.

Question 2.1: Will the monopsonist hire more, fewer, or the same number of workers? Explain.

Solution to Problem 2

With $W_{min} = 22$, substitute into the labor supply curve to find the feasible L :

$$22 = 8 + 2L$$

$$2L = 14 \Rightarrow L = 7$$

However, the monopsonist will only hire workers as long as $W_{min} \leq MRP_L$. Since $MRP_L = 20$, the minimum wage of \$22 exceeds the MRP_L , making it unprofitable for the monopsonist to hire any additional workers.

Thus, the monopsonist hires **fewer workers (0)** in response to this excessively high minimum wage.

Problem 3: Competitive Market vs. Monopsony

In a competitive labor market, the equilibrium wage is \$18, and 10 workers are employed. Suppose the same market becomes monopsonistic, with a labor supply curve $W = 10 + 0.5L$.

Question 3.1: How does the number of workers and wage differ between the competitive market and monopsony?

Solution to Problem 3

Step 1: Competitive market outcome. In a competitive market, the equilibrium wage and employment are given as **\$18** and **10 workers**.

Step 2: Monopsony outcome.

The monopsonist equates $MC_L = MRP_L$. Derive MC_L from the labor supply curve:

$$W = 10 + 0.5L \Rightarrow MC_L = 10 + L$$

Set $MC_L = MRP_L$. Assume $MRP_L = 18$ (constant in this example):

$$10 + L = 18$$

$$L = 8$$

Substitute $L = 8$ into the labor supply curve to find W :

$$W = 10 + 0.5(8) = 14$$

In the monopsonistic market, the firm hires **8 workers** and pays a wage of **\$14/hour**, compared to **10 workers** at **\$18/hour** in the competitive market.

Summary of Insights from the Problems

- In a **monopsony**, workers are paid less and fewer are hired than in a competitive market.
- A **binding minimum wage** can correct monopsonistic inefficiencies, increasing employment up to a point.
- Raising the minimum wage too high (above MRP_L) can backfire, leading to reduced employment or zero hiring.

By practicing these problems, the dynamics of monopsony power and the effects of minimum wages become clear—and a bit more enjoyable!