

Friction in the Labor Market – Minimum Wage¹ In-Class Problem²

Recent debates over the effect of increasing the nation's minimum wage level have left many wondering if such a move is productive, disruptive or benign for the economy. While the debate is as politically and socially charged as it is economically interesting, there are certain aspects of the issue we can model. The Fair Minimum Wage Act of 2013, introduced by Senator Tom Harkin of Iowa, has yet to be passed by both the US House and Senate, but there is a growing consensus that increases in the minimum wage will rise in the near future, so much so that some states and municipalities have begun to get out in front of the issue and begun to increase their respective minimum wage levels.

Let's suppose that you've been called on to help your professional association better understand the impact an increase in the minimum wage might have on its members. You happen to be the VP of operations for a national operator of winter resorts and you understand the issue is of particular import to human resource managers and other executives in your industry. Most of your seasonal employees earn a wage marginally higher than the federal minimum wage, with the wage bill for these employees representing 21% of your operating expenses out of a total wage bill of 36%. You recognize that this wage is reflective both of the relative skill levels of these workers and their plentiful supply. You're concerned that Senator Harken's proposed \$10.10 per hour minimum wage bill (\$21,008 annually), which has received unanticipated support from the US House and Senate, may distort the market in meaningful ways.

You've observed that the labor supply and demand relations for your seasonal workers are parameterized by the equations $L_S = -150,000 + 75W$ and $L_D = 2,000,000 - 65W$, where W is the annualized wage of these workers based on a 40 hour work week and 52 weeks of employment per year, and L is the number of seasonal workers in the winter recreation industry. Since the equilibrium value of wage (W^*) is already greater than the current minimum wage of \$7.25 per hour, you don't immediately see that the current minimum wage creates problems in your market. After all, the real minimum wage (inflation adjusted) has been stagnant to downward trending for decades. What you need to do now is help your industry association and its members understand how the proposed minimum wage increase is likely to affect the industry.

A complementary association of property owners and merchants has formed, which association represents towns surrounding winter resorts. This group understands, as you do, that if they're required to increase the wage of their lower paid workers, they'll also have to increase prices. They're confident that tourists coming into their towns will willingly suffer the necessary price increases as winter recreation tends to be relatively inelastic with respect to modest price increases. They're overtly supportive of Senator Harken's legislation. The owners of the resorts you represent aren't so confident.

¹ This problem is intended to present an abbreviated discussion of the included economic concepts and is not intended to be a full or complete representation of them or the underlying economic foundations from which they are built.

² This In-Class Problem was developed by Rick Haskell, Ph.D., Department of Economics, College of Social and Behavioral Sciences, The University of Utah, Salt Lake City, Utah (2015).

1. Calculate L^* and W^* for the winter recreation industry based on the current labor supply and demand relations.

$$L_S = -150,000 + 75W; L_D = 2,000,000 - 65W$$

$$L_S = L_D$$

$$-150,000 + 75W = 2,000,000 - 65W$$

$$140W = 2,150,000$$

$$W^* = \$15,357.14; L^* = 1,001,786$$

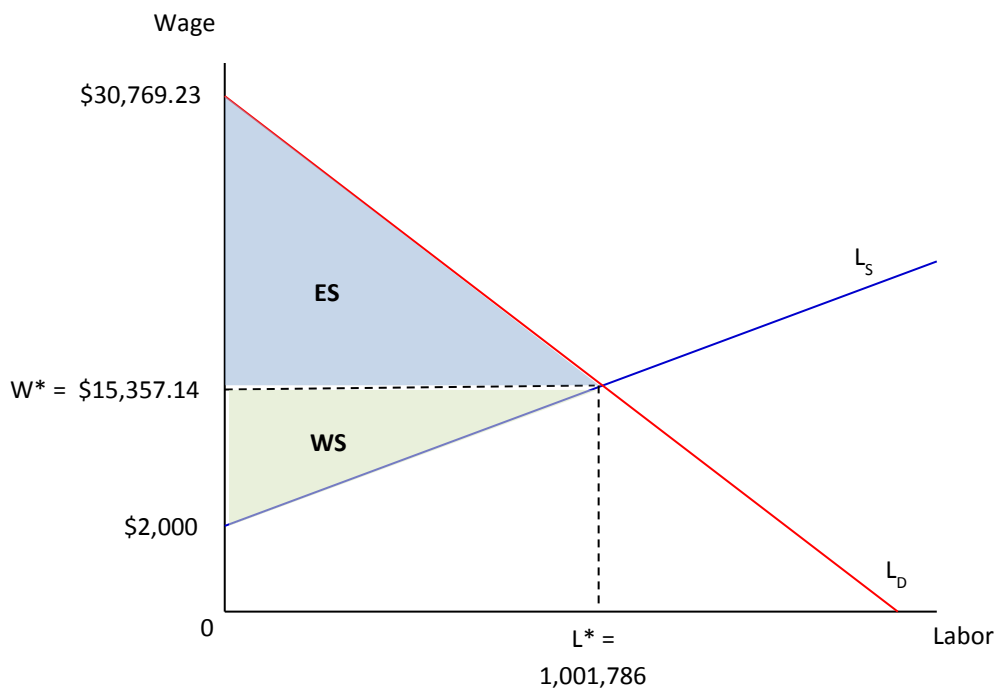
2. Supposing the labor supply and demand relations don't change in the short run, what will be the effect on labor supply and labor demand as a result of the proposed increase in the minimum wage?

$$L_S = -150,000 + 75(\$21,008) = 1,425,600$$

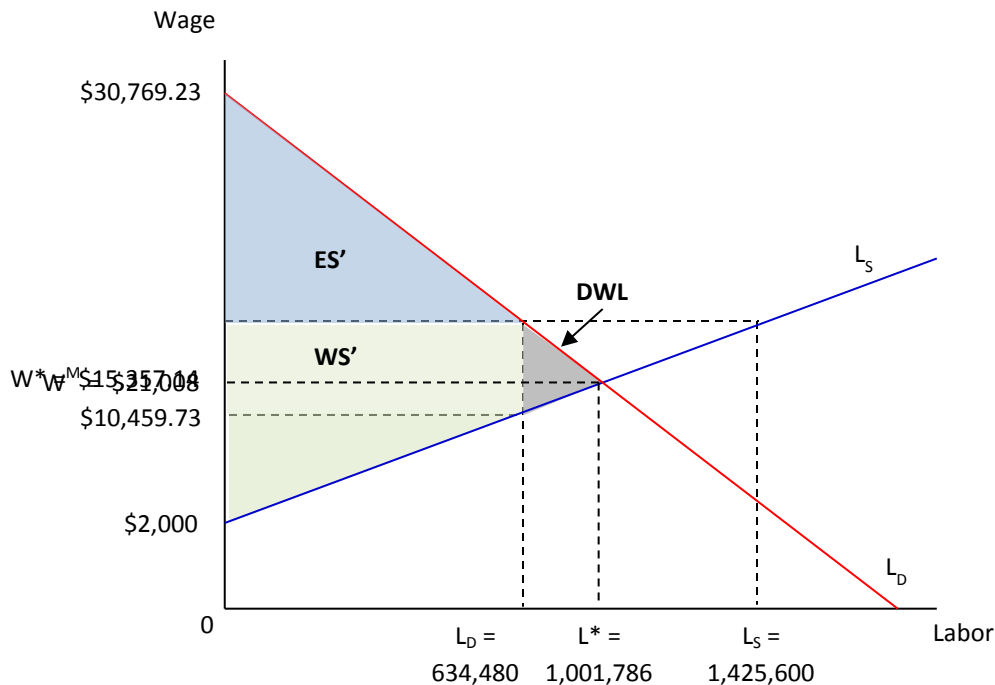
$$L_D = 2,000,000 - 65(\$21,008) = 634,480$$

The effect would be a surplus of willing workers (unemployed) of 791,120.

3. Provide a properly labeled and articulated labor market model for this market of seasonal workers including the original L_S and L_D relations and clearly identify the areas of worker and employer surplus (you do not need to calculate values for WS and ES at this point).



4. Provide a properly labeled and articulated labor market model for this market of seasonal workers including the original L_S and L_D relations based on the imposition of a \$10.10 minimum wage and clearly identify the areas of worker and employer surplus and dead weight loss as a result of this change.



5. Provide a market analysis including the values for WS, ES, TS, WS', ES' and DWL for this market as a result of this change in minimum wage.

$$ES = \frac{(30,769.23 - 15,357.14)(1,001,786)}{2} = \$7,719,807,995$$

$$WS = \frac{(15,357.14 - 2,000)(1,001,786)}{2} = \$6,690,497,925$$

$$TS = \$7,719,807 + \$6,690.497 = \$14,410,305,920$$

$$ES = \frac{(30,769.23 - 21,008)(634,480)}{2} = \$3,096,652,605$$

$$WS = (21,008 - 10,459.73)(634,480) + \frac{(10,459.73 - 2,000)(634,480)}{2} = \$9,376,431,095$$

$$DWL = \frac{(21,008 - 10,459.73)(1,001,786 - 634,480)}{2} = \$1,937,221,430$$

$$ES' = \$3,096,635,605 + \$9,376,431,095 + \$1,937,221,430 = \$14,410,305,130$$

$$\approx \$14,410,305,920$$

$$= ES'$$

- 6. Provide a description of what you might expect to happen to lower skilled workers and those firms that employ them if wages rise as expected.**

Answers might include discussions of the following:

- Rising levels of unemployment
- Increase in technological intensity as firms are motivated to replace more expensive labor with technology and capital
- Decreasing levels of profit for firms if they can't raise prices to cover the increases in costs

- 7. Provide an argument consistent with the apparent preferences of the merchants and property owners representatives and explain how an increase in minimum wage might provide an economic benefit.**

Answers might include the following:

- Higher wages for seasonal workers may result in increased demand for local goods and services
- Increased demand for local goods and services may make it easier for local merchants and property owners to employ seasonal workers in the "off season"
- A 39% increase in the unskilled worker wages will increase prices by a much lesser percentage as wages for these workers represent 21% of costs, at least for your industry association members.

- 8. Offer your opinion of whether or not your industry association should support or work against the legislation and back it up by how you expect prices, consumer demand, social support, and profits to change as a result of such an increase.**