I. The Competitive Model

If the market for an input is perfectly competitive, then we can analyze the firm’s input-hiring choice in a manner very similar to the way we analyzed the perfectly competitive firms output choice. The input’s price is established by supply and demand on the input market. The individual firm takes this price as given; it can buy as much or as little as it wants at that price.

Let’s take labor as an example. For a particular skill-level of labor, the supply of labor and demand for labor interact to yield a market price and quantity of labor. The price is called the “wage.” This wage is taken as given by the individual firm, which sees itself as facing a horizontal MC of labor at that wage. (This is analogous to the firm seeing a horizontal demand for its product at the market output price.) It then compares this to a curve representing the marginal benefit of labor hours; this curve is called the “marginal revenue product of labor” or MRPL. The optimal choice occurs where two curves cross.

\[ \text{MRPL} = p \times MPL \]

Note that if the firm has additional costs of labor, then the MC of labor may be higher. But also note that some costs of labor do not vary by the hour (e.g., if you provide health insurance, that varies by the number of workers, not worker hours) and therefore do not affect the MC of labor.

What is the MRPL? It is the additional revenue the firm will get from having one more labor hour. If the firm is perfectly competitive (which it may not be – it could face imperfect competition in the output market), then the additional revenue from one more labor hour is (a) the additional output produced by that labor hour, or the MPL, multiplied by (b) the price at which the output can be sold, p. Thus, \[ \text{MRPL} = p \times \text{MP}_L \] if the output market is competitive. If the output market is not competitive, then there’s not a simple formula for MRPL. If the firm is going to sell the additional output from one more labor hour, it might have to lower the output price to do so.
Note that if a minimum wage pushes up the wage, the firm will cut back its employment because the MRP_L will cross the MC at a lower amount. The workers who get cut will be those whose marginal productivity is smallest. This is the standard economic argument against the minimum wage.

II. The Monopsonistic Model

If the labor market is not competitive, then the firm does not face a horizontal MC of labor. Instead, it faces an upward-sloping labor supply curve; it must offer a higher wage in order to hire more workers. If it cannot wage discriminate (pay different wages to workers of the same skill level), then raising its wage to attract more workers means raising its wage for all like-skilled workers. For this reason, the MC of labor will be higher than the labor supply curve. The reasoning here is analogous to that which demonstrates the MR will be below the demand curve for a monopolistic firm. The figure below shows the firm’s optimal choice of labor hours.

Note that the firm hires fewer hours than the amount that would be hired in a perfectly competitive market, which occurs at the intersection of MRP_L and S_L. This provides the basis for an argument in favor of a minimum wage. If a minimum wage forced the firm to pay more to all its workers (regardless of how many it hired), then it would make sense to go ahead and hire up to the point where the minimum wage crosses the MRP_L. However, note that this would only work up to the pointe where the minimum wage equals the competitive wage; if the minimum wage exceeded the competitive wage, the unemployment effect would kick in again. And note that the differential between the monopsony wage (w*) and the competitive wage depends on how much competition there is. Even if the labor market is not perfectly competitive, there may be sufficient competition to make the differential very small.