

## Labor Market Marginality<sup>1</sup>

### In-Class Problem<sup>2</sup>

Suppose the consumer market for BBQ ribs in Salt Lake is represented by a demand of 20,000 racks of ribs per day and a price of \$14 rack. You've got a killer rib sauce and are a BBQ master! Your goal for years has been to leave your job as a mid-level manager making \$80,000 a year with another \$20,000 in benefits so you could own your own rib joint and serve your amazing ribs – you secretly expect to become famous and plan to beat out Bobby Flay in a food challenge! You also plan to enter Tyler Florence's *Great Food Truck Race* and crush the competition... in short, you think pretty highly of yourself, your ribs, and your prospects. The good news is that the market demand is stronger than the supply so you have a good chance of selling all the ribs you can produce in your smoker.

You decide to enter this market and know that your non-labor costs, both fixed and variable, can't really be changed so you need to run a very efficient operation from the standpoint of how you organize and manage your labor. Rather than open a full restaurant, you decide to put together an elaborate food truck with room for as many as 8 additional workers in the truck's galley and at the smoker you'll trailer behind the truck.

You find that decent workers in the Salt Lake market will cost you \$80 per day per worker (\$10 per hour x 8 hours) and based on the way you expect to structure your food truck operation and the market it will service you put together an analysis informing you of how many workers you'll want to hire; remember that you also plan to work on the truck, but you'll take all of your income through profits and aren't expecting to give yourself an actual wage.

Just for the sake of added information, you've calculated that your truck will cost you \$300 per day in operating and depreciation costs, and that the variable costs of all other input (aside from labor) will run about \$6 per rack of ribs. You've saved aggressively over the years and have the \$150,000 it will take to purchase the truck and start up inventory, but you'll have to take this money from an account yielding you 6% per annum. Your task now is to see whether or not your truck stands a chance of making money, or if you're going to crash and burn like more new businesses. To do this, you're going to focus first on labor as an important factor input in your business analysis.

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<sup>1</sup> This primer 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.

<sup>2</sup> This problem set was developed by Richard Haskell, PhD (rick.haskell@utah.edu), Department of Economics, College of Social and Behavioral Sciences, The University of Utah, Salt Lake City, Utah (2015).

1. What rule or optimizing condition do you expect to rely on to decide how many workers to hire for this firm given the data provided?

2. Complete the following table given everything you know about this firm.

Units of Labor	Wage	Quantity Output	$MP_L$	$P^*$	$MRP_L$	$TC_L$	$ME_L$	TR	Marginal Profit From Labor	Total Profit From Labor
0	80	0	--	14	--	0	--	0	0	0
1	80	30	30	14	420	80	80	420	340	340
2	80	70	40	14	560	160	80	980	480	820
3	80	110	40	14	560	240	80	1540	480	1300
4	80	140	30	14	420	320	80	1960	340	1640
5	80	160	20	14	340	400	80	2240	200	1840
6	80	170	10	14	140	480	80	2380	60	1900
7	80	175	5	14	70	560	80	2450	-10	1890
8	80	160	-15	14	-210	640	80	2240	-290	1600

3. What is the profit maximizing level of labor this firm should hire? Explain why you believe this to be the case.

6 workers, this number of workers still yields some marginal profit per worker ( $MRP_L > ME_L$ ), but at 7 workers  $MRP_L < ME_L$  and you'll lose \$10 by hiring that 7<sup>th</sup> worker.

**4. What is the total expected profit directly resulting from labor's effort in this operation?**

\$1900

**5. Given the other fixed and variable costs, how much do you expect to pay yourself?**

At 6 workers you'll have total costs of \$1,800 (\$480 for labor, \$1,020 for raw materials, and \$300 for the truck) and total revenue of \$2,380, so your total profit will be \$580, which is the amount you'll be able to pay yourself. Assuming 5 days a week and 52 weeks a year this amounts to \$150,800. Not bad, right?

**6. Do you consider the expected income to be sufficient to motivate you to engage in this business activity?**

\$580 per day for 5 days a week and 52 weeks a year is \$150,800, subtract from that the opportunity cost of your time of \$100,000 in the combined wages and benefits, and the opportunity cost of your invested capital (\$150,000 @ 6% = \$9,000) and this leaves \$41,800 in potential annual economic profit from this venture.

Is this enough to motivate you to leave your job, invest in your dream, and risk it all? That should depend on a few other variables: how accurate is your plan, what are the unexpected problems you might encounter such as increased competition, change in consumer preference, productivity problems, maybe your ribs aren't as good as you think they are, etc.

\$41,800 is a 41.8% increase over your current income and many would risk the good job and investment capital, others would not – it's a normative decision based on your tolerance for risk, appetite for adventure, and just how strong your gut is!