

Markets and Marginalism

By Dwight Lee

[Audio](#) (7:58 minutes)

Question for thought: As you listen, determine how firms maximize output and value by equating at the margin?

To do your best in your personal activities, you have to “equate at the margin,” which means allocating your time over different activities so that the marginal value of time in every activity is the same. The importance of equating at the margin extends beyond individuals doing as well as possible personally; it is also crucial to the success of the general economy. And because of the information and incentives transmitted through market prices, people and businesses, responding to their private concerns, are led to cooperate in ways that are constantly moving margins toward equality throughout the economy. A discussion of this process provides additional insight into the advantages we all realize from the communication and cooperation motivated by market prices.

There are a large number of firms in the economy, each concerned primarily with increasing profits. But the decisions *these* firms make affect *all* the others. For example, the more that one firm produces, the more scarce resources it has to use and the less other firms can produce. Ideally, each firm will produce whatever amount it chooses in a way that minimizes the sacrificed value elsewhere in the economy. Achieving this ideal requires an enormous amount of information on such things as weather conditions, resource discoveries, hostilities between countries, productive technologies, and the particular circumstances and subjective preferences of millions of workers, resource owners, and consumers.

No government agency could ever acquire and constantly update all this information and use it properly. Fortunately, this information is communicated through market prices, with the input prices that firms pay reflecting the marginal value of those inputs in their best alternative uses. So with each firm motivated to choose the input combination that minimizes its cost of producing a given amount of output (which requires equating the marginal productivity per dollar cost of all inputs¹), it also chooses the input combination that produces that output at a minimum sacrifice of value elsewhere in the economy. This equating at the margin reflects an impressive amount of coordination, with each firm responsive to the value of inputs to others.

Outputs and Marginal Adjustments

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But it is not enough that each firm minimize the value lost (the cost) from producing its output to make the best use of our limited resources. Each firm could be producing its output at the lowest cost, with the *combination* of all firms' outputs being too costly. For example, we could produce dozens of disposable diapers daily for every American with the least-cost combination of inputs. This is obviously too many disposable diapers because the marginal costs (even though as low as possible) of diapers would be far greater than their marginal value—the value sacrificed to produce one more diaper is greater than the diaper is worth. Producing the combination of all goods that creates the greatest value for the resources used requires not only that each good be produced at least cost, but that each good be produced only up to the point where its marginal value equals its marginal cost.

Again, equating at the margin generates the most valuable combination of products over all firms. And by simply responding to market prices, each firm has access to all the necessary information. The price of a firm's product reflects its marginal value, and input prices determine the firm's marginal production costs. This information, when used by firms trying to make as much profit as possible, results in that combination of outputs that creates the most value. Each firm increases its profits by expanding output as long as the price it receives for its product is greater than its marginal cost (the value sacrificed by reducing the amount produced by other firms).^[22] So when all firms produce the amount where price equals marginal cost, each firm is maximizing its own profit and the value of the combination of goods produced is maximized. Because market prices coordinate production decisions, these decisions are equated at the margin over all firms, and it is impossible to increase the value of the combination of goods produced by expanding the output of some firms and reducing the output of others.

The Big Advantage Is Liberty

I have discussed a level of “perfection” never reached in the real world. The relevant margins never reach complete equality because the countless number of preferences, circumstances, and technologies affecting the value of inputs and outputs constantly changes. But market prices constantly change to provide information on new conditions and to reward behavior that pushes the margins toward equality. That reduces the cost and increases the value of what is being produced. These market adjustments do a far better job maximizing the value of economic decisions by keeping all decision-makers responsive to others than any group of government planners could ever do.

But the greatest advantage of the market is the liberty it allows. People can pursue their individual values and concerns instead of being herded into broad categories by remote authorities and told how to behave to promote some vision of the general good. For example, a business may not maximize profits because the owner wishes to employ disadvantaged youth or take time off for volunteer work. Or a worker may choose not to take the highest-paying job because he doesn't want to move away from a sick parent. People make these types of decisions every day, and the values they reflect can never be communicated through the political process and properly responded to by political authorities. But people can communicate their values and concerns through the effect their decisions have on market prices. And when people do so, they can be confident that others will consider those concerns in their own decisions. The result is a pattern of mutual adjustment and coordination that creates far more wealth and opportunity than could ever be achieved by central direction.

Concluding Question: Now, do governments or firms do a better job of maximizing output and value? Explain.

Citation

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¹ For example, if the marginal productivity for \$1 of input X is 2 while the marginal productivity for \$1 of input Y is only 1, then the firm could expand its use of input X by \$1 (increasing output by 2 units), reduce its use of input Y by \$2 (reducing output by 2 units), therefore maintaining the same output at a cost of \$1 less.

² This statement has to be qualified if the firm is a monopolist because price and marginal revenue diverge, as explained in every microeconomics text. But unless perpetuated by government, this monopoly "distortion" is rather benign when considered over time. Indeed, dynamic economy efficiency is increased when firms can strive for, and temporarily achieve, "monopoly" power.