

Illustration 20.1

Do Income Taxes Affect Managerial Decision-Making?

Throughout this text we have essentially ignored any effects of income taxes or corporate taxes in our analysis of managerial decision making. To be sure, we did demonstrate the effect of excise taxes on market prices and quantities sold early in the text. Excise taxes raise prices and decrease quantities sold, the extent of which depends on elasticity and the size of the tax. But we have not yet mentioned the effect of an income tax or corporate profit tax on price and sales, even though these are the taxes that are typically foremost in many people's minds. When we discussed managerial decision making and optimization there was no reason to consider the effect of income taxes—until now.

To put things into perspective, we will quote briefly from a column by Michael Kinsley, in *The New Republic*, September 6, 1993. Mr. Kinsley was commenting on Congressional and media debate over the effect on small businesses of President Clinton's proposal to increase tax rates for upper income taxpayers. He pointed out that many politicians and small business owners had been complaining that the higher taxes would put their businesses at a disadvantage when competing with foreign companies—presumably because of resulting price increases—and force them to eliminate jobs—presumably because of reduced production.

Mr. Kinsley comments, "Neither [complaint] makes economic sense. The income tax is levied on a businessperson's net profits. [The rate of the tax] has no effect on the question of how best to maximize those profits: how much to produce, what prices to charge, how many people to hire, etc. To be sure, higher tax rates can reduce the *incentive* to work and invest for small business people, like any other people."

Now we will take a look at those different effects to explain why we have ignored income taxes thus far. First, consider the effect on profit-maximizing decisions: output, price, and hiring. As we have emphasized throughout the text, profit is maximized in a given situation when price and output are chosen so that $MR=MC$ or when the usage of variable inputs is chosen so the $MRP=$ Price of the input. Suppose a firm is choosing an output and price to maximize profit, but there is no income tax. If an income tax of t percent is levied, the firm would still choose the price and output that maximize profit— $MR=MC$ —because the owners prefer to receive $(100-t)$ percent of the maximum possible profit to $(100-t)$ percent of any lower profit at which MR is not equal to MC . There is no incentive to change output, price, or, for that matter, the usage of any input. For example, suppose the income tax rate is 25 percent and the maximum before-tax profit is \$1 million. The firm pays \$250,000 in taxes and keeps \$750,000. If the tax rate rises to 35 percent, paying taxes of \$350,000 on the maximum before-tax profit of \$1 million and keeping \$650,000 is better than any alternative that would reduce before-tax profit.

Therefore, the reason that we have ignored the discussion of income taxes until now is that we have been concerned with the way firms maximize profit under given conditions and the tax rates have no effect on decision making under these circumstances. But now we are considering the investment decision, and, as Mr. Kinsley points out, taxes can have an effect on the incentives to work and invest. We will consider here only the effect on the incentive to invest, and will ignore the incentive to work.

As we have stressed in this chapter, the *NPV* rule provides the foundation for investment decision making. If $E(PV)$ is greater than the cost of a project, $E(NPV)$ is positive and the project should be undertaken. But the return that investors are interested in is the after-tax expected net present value. In an extreme case, suppose there is a 99 percent tax on yearly cash flows. This would presumably reduce the after-tax *NPV* of most prospective investments below their costs and substantially reduce the number of investments with a positive $E(NPV)$. Alternatively, when choosing price and quantity, an owner would prefer one percent of maximum profit over one percent of a lesser amount, as we discussed. So the tax would probably have a large effect investment and no effect on price.

As the tax rate is reduced, the after-tax expected cash flows from investment projects would increase; and more and more projects would change from negative $E(NPV)$ to positive $E(NPV)$ —assuming the cost of the project does not change. However, since the cost of an investment can be a tax deduction when financed with retained earnings, the costs may change when the tax rate changes. Nonetheless, the basic conclusion is the same. Increases in the tax rate reduce investment by reducing after-tax expected net cash flows, and decreases in the tax rate increase investment by increasing after-tax expected net cash flows. There are some additional factors influencing $E(NPV)$ so the extent of the effect on tax rates is basically an empirical question, and depends to some extent on the characteristics of individual investors.

There is another way in which the tax structure, combined with inflation, may have a negative effect on investment. Under the present tax structure, nominal, not real, income is subject to taxation. Therefore, if someone purchases an asset and sells it later, all gains are subject to taxation, even though most, or even all, of the gain could be due to inflation. For example, suppose a firm purchases an asset for \$100,000. The value of the asset increases during a year at the same rate as the rate of inflation, 5 percent. If the firm sells the asset for \$105,000, realizing a net gain of \$5,000 which, for sake of illustration, is taxed at a 34 percent rate, the after-tax return is \$3,300. The firm, in real terms, has lost \$1,700 ($.34 \times \$5,000$), because the \$105,000 is worth only \$100,000 in year-one dollars. In order to receive \$105,000 after inflation and taking taxes into account, the rate of return must be about 7.6 percent.