



INTRODUCTORY DISCUSSION OF THE BASIC CONCEPTS OF DEPRECIATION AND EXPENSING

Depreciation, the deduction of the cost of physical capital over time, is employed in the tax code to determine allowable business deductions for the cost of investment. Depreciation is a flawed concept that understates the real cost of plant, equipment, and structures, overstates business income, boosts business taxes, and greatly increases the cost to businesses of acquiring and employing capital. The result is less investment and capital formation than would occur under a more rational treatment of capital expenditures. **Expensing**, the immediate deduction of the cost of acquiring plant, equipment, structures, and inventory, is the economically correct way to treat investment for tax purposes. This paper is intended to provide the reader with a clear understanding of the concepts of depreciation and expensing, and to show that the proper treatment of capital expenditures can significantly increase the nation's prosperity. It should be noted that all of the major consumption-based tax reform proposals have, at their core, an explicit or implicit shift from depreciation to expensing of investment outlays.

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What are depreciation and expensing all about?

To determine profit, businesses must subtract their costs from their revenues. Costs include, among other things, labor, raw materials, inventory, and the cost of plant, equipment, and structures.

Expensing is the immediate subtraction of the cost of plant, equipment, structures, and inventory from revenue at the time the asset is purchased. Expensing is used in cash flow accounting, the simplest and most common-sense kind of record keeping.

For example, suppose you were to open up a pizza shop. Along with the usual expenses, such as rent, wages, electricity, flour, tomatoes, cheese, and anchovies, you would also have to purchase a pizza oven. Now suppose that you sell a lot of pizzas over the course of the year. What is your profit? It is the difference between two money streams: the money received from pizza sales minus the money paid out in the form of expenses to make those pizzas, including rent, materials, etc. And don't forget to subtract the money you paid for that pizza oven.

Isn't that how business profit is calculated for accounting and tax purposes?

No, it isn't. The accounting profession and the Internal Revenue Code do not allow businesses to expense more than a small portion of their capital outlays. The rest must be "depreciated". Depreciation is an accounting method that requires businesses to report the cost of capital assets over extended time periods. The tax code requires businesses to use depreciation to value most investment costs for tax purposes (capital consumption allowances), and the time periods are 3 to 20 years for equipment, 39 years for most structures, even longer for some railroad assets.

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For example, since the pizza oven has a longer life than one year, the tax code allows you to deduct each year only a fraction of the cost, set forth on Treasury schedules, that loosely reflects how much that kind of equipment is estimated to be "used up" during the year to earn your income, even though you paid for the oven in its entirety all at once. The depreciation is theoretically the amount by which the oven declined in value over the year. (This is also called "economic depreciation", and the resulting income is often called "economic income", even though it is all bad economics!) To get an idea of just how difficult a task it really is to figure out the change in value of an asset, imagine trying to figure out how much of your house or car was used up this year! Now imagine doing the same for a large multinational corporation with billions of dollars of assets of all types—buildings, machines, etc. Depreciation is a fuzzy concept indeed!

I don't get it. If I paid, say, \$20,000 for a pizza oven this year, that's a real expense that I incurred to make pizzas. By allowing me to deduct only a part of the \$20,000 I actually spent, based upon some ambiguous depreciation rule, my income appears higher than it really is.

That's right. Treating capital purchases with depreciation—requiring them to be depreciated over time rather than deducting the actual expenses as they are incurred—overstates business income in the years the expenses are incurred. Then, in later years, cost is overstated and income is understated as deductions are taken in later years in which no actual outlay occurs. But the net effect is to

understate costs in present value by pushing them into the future, and to overstate income in present value by moving it forward.

Businesses (or those who lend to them) pay for capital assets up front, incurring the full cost of the assets in the year the assets are placed in service. If capital spending were deducted from revenue immediately ("expensed"), the deduction would equal the full cost of the capital outlays, and business income would be measured correctly.

Under depreciation, however, the present value of the allowances is less than the full cost of the assets, because a dollar in the future is worth less than a dollar today (the "time value" of money.) In addition, the delay subjects the write-offs to further loss of value if there is inflation over time. If capital outlays were expensed, there would be no loss of value due to delay or inflation.

Doesn't overstating my income force me to pay higher taxes and hurt the economy?

Sure. Because depreciation understates the cost of acquiring physical capital, business income is overstated and overtaxed. Consequently, less capital is formed, and wages and employment suffer. Under expensing, income would be stated correctly, and not over-taxed (at least, not by this provision of the tax code). The country would acquire the economically optimal stock of capital. Wages and employment would be higher than under the tax depreciation regime now in place.

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Those who invest in durable capital goods pay tax on income they don't really have. This must certainly make them think twice about investing in new plant and equipment. They lose the use of the money they paid for the equipment but they pay taxes as though they still had it, and it is not certain that they will earn revenues from that equipment over time.

Depreciation ignores risk. You could be out of business long before the pizza oven wears out. Or someone may invent a newer, more efficient pizza oven, and you may have to scrap your old oven before its time to keep up with your competition. The revenues you may get at some future date from your investment are uncertain, but the money you spent for the oven is certain and it's gone! That is another reason why you should include expenses as incurred when calculating your income.

The economy is growing nicely, and employment is high. Why worry about depreciation and expensing?

Yes, the economy is doing well, and employment is high. But if more capital were in place, wages could be several thousand dollars higher for the average worker. It is better to have high employment with an average wage of \$40,000 than an average wage of \$35,000.

Furthermore, the good growth we have today may not last. The current economic expansion, which began in March of 1991, owes much of its strength and longevity to the decline in the rate of inflation during the 1990s. The decrease in inflation has reduced the inflation portion of the depreciation "shortfall", and has brought the real value of the capital consumption allowances a bit closer to the actual cost of the assets, reducing the excess tax burden on capital. The lower tax rate on capital income has increased the incentive to invest, which has increased productivity, output, and employment in recent years. But with inflation at or near zero, this economic "shot in the arm" has largely run its course. Much of the additional investment made possible by the reduction in the inflation rate has been put in place. In the years ahead, the rate of investment and economic growth will slow unless we remove more of the excess tax burden imposed on investment by depreciation.

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How is it that capital formation leads to prosperity?

Think of the difference between a man stranded on an island with only his hands to catch fish for his subsistence (no capital) and that of a man with a net (capital). The addition of capital allows the man to catch a whole week's worth of food in a few minutes, leaving more time to build a shelter or clothing and thus greatly increase his standard of living. So it is with nations. Or suppose we banned the use of farm equipment and machinery in the United States. Most of the population would be employed in agriculture, as they were at the turn of the century. They would not be free to produce television sets, automobiles, life-saving drugs, or any of the thousands of items that we enjoy today. In fact, the application of capital to farming, which has made that occupation capital intensive rather than labor intensive, not only greatly increased the output of other goods and services, it also increased the output of agricultural products! Progress does not just happen. Americans owe their prosperity and high standard of living to years of capital formation, innovation, and thrift.

If depreciation results in a distorted measure of business income, why do businesses use it internally in reports to investors and shareholders?

One possibility is that accountants are not trying so much to measure annual income as to show shareholders what a company is worth over time. A company may spend a great deal of money on a major investment in one year, making its current outlays exceed its revenues, and then not need to add to that investment for several years to come. In later years, its revenues may exceed its costs by a wide margin. (Think of a power company building a dam and power lines its first year, and then selling power for fifty years thereafter with no further large investments.) If shareholders looked only at the first year's cash flow statement, they might think that the company was in trouble, when in fact it was making a wise and profitable investment that will pay off handsomely.

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Ideally, investors should look at the future earnings that the investment will bring in, and compare them (discounted to reflect their present value) to the up-front costs of the investment. But accountants do not have a crystal ball, and cannot foretell precisely what the future revenue of the company will be. They certainly cannot put it into a current financial statement. Instead, they deduct a part of the known dollar cost of the original investment each year, distributing it over the time period that the asset is expected to be in use and contributing to revenue. That way, the company does not appear to be losing money in the first year, and does not appear to be making higher-than-average returns in later years. The cost of this illustrative smoothing of company receipts and outlays is that it understates the present-value cost of the outlays, which were really made up front, not stretched out over time.

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Another possibility is that the financial statements are trying to combine income and net worth (balance sheet asset and liability) concepts in a single statistic. The asset bought in the first year does not wear out immediately. It is still worth something for several years thereafter. In theory, it could even be sold in the future, and part of its cost could be recovered. So buying an asset does not immediately reduce the company's net worth by the amount of the outlay. One flaw in this reasoning is that the business cannot both have the asset and the money tied up in the asset at the same time. Unless the business actually sells the asset, and gives up the earnings it brings in, it

cannot recover the residual value. And if it keeps the asset until it wears out, the cost is not recovered, except through the revenues the machine earns.

In effect, the accountants are ignoring the economic concept of "opportunity cost". Opportunity cost means that, as soon as a business spends money on a machine or a building, it loses the use of that money for any other purpose, such as repaying debt, raising dividends, hiring more workers, R&D, etc. The full "opportunity cost" of the outlay occurs in the year the machine is paid for.

Put another way, you cannot buy only the portion of the pizza oven that wears out every year, you have to buy the whole thing at once, and the cost of carrying the whole asset as it loses value over time is equal to the full up-front purchase price. Unless one believes that the time value of money is zero, depreciation understates that cost, and is improper accounting. Although you lost the use of the full \$20,000 when you purchased the pizza oven, and you do not recover the use of it until the earnings from the pizza sales materialize, the tax code pretends that you still have most of the \$20,000 and taxes that much revenue as current income.

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(It is possible to borrow to buy the oven, and repay the loan over time, but that is a separate transaction between you and the lender; you will deduct the interest on the loan, and the lender will pay tax on the interest. It has nothing to do with the cost you incurred when you gave the money to whoever sold you the oven. Furthermore, the company that sold you the oven had to report the sale as taxable revenue that year. Treasury treats that receipt as income right away, but makes you wait to deduct the payment! Also, it is possible to lease the oven, in which case the person who bought the oven in order to lease it to you should be allowed to expense the cost.)

How did this erroneous concept of depreciation of capital get into the tax code?

Depreciation was enacted partly in an effort to raise money, partly to mimic the write-offs used by accountants, and partly to satisfy a philosophy of using taxation to redistribute income.

Overstating business taxable income raises revenue for the U.S. Treasury, at least, insofar as it does not discourage investment and reduce economic activity, which tends to reduce revenues from business, payroll, and personal income taxes.

There is also a philosophy of income taxation, expounded most clearly in the 1930s and 1940s by professor Henry Simons, an economist at the University of Chicago. Professor Simons felt strongly that uneven distribution of income threatened democracy and the free market system. In the 1930s, support for democracy and free markets was reeling from the shock of the Great

Depression and the onslaught of fascist and communist ideologies.¹ Simons also felt that inequality was aesthetically unappealing. Consequently, he favored subjecting saving and investment income to multiple layers of tax to aid in the redistribution of wealth.

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By deducting only a portion of capital purchases, the tax burden would fall more heavily on the relatively wealthy investors who could afford investments in plant, equipment, machines, etc. This would ostensibly lead to greater income equality.² What this actually does is hurt growth and hurt the poor. The tax barriers to saving and investment have slowed the growth of productivity and wages, including the wages of low income workers, and have made it harder for savers, including the poor, to acquire wealth.

So correct tax treatment of investment requires a move away from depreciation and towards expensing of capital purchases?

Exactly. In addition, while there are many ways to cut taxes on businesses and savers to encourage growth, moving toward expensing is one of the most effective at promoting growth. Because expensing is focused so clearly on new investment, it is a very efficient way to boost investment incentives for the amount of tax revenue initially given up. Moving to full expensing

¹ On this point Simons, who had a very gloomy outlook for the future of the world, wrote: "If we cannot build now an abundantly productive system of equitable personal taxes, as one indispensable part of a program for preserving a democratic, free-enterprise system against the current trend back to collectivism and irresponsible political authority, then that glorious undertaking is simply hopeless." (Henry Simons, *Personal Income Taxation* (Chicago: The University of Chicago Press, 1938). A better solution would have been for him to urge adoption of a pro-growth tax reform encouraging investment and saving, raising everyone's incomes, restoring hope, and reinforcing civil order.

² In Simons's view, the tax base should consist not only of current income, but also of any gain in net worth. Anyone who can afford to save to add to his or her net worth, or to leave a capital gain unrealized and unspent, is presumed not to really need the money, and to be fair game for an extra round of tax. For example, Simons advocated taxing gains in net worth due to asset appreciation (capital gains). The value of a capital asset is the present value of the future income, less future taxes, that the asset is expected to earn over time. Since the future income will be taxed if it ever materializes, taxing the present gain in asset value as well as the future income that made the asset value rise is double-taxation. In the case of the purchase of plant and equipment, assets retain some value after they are purchased. Since the net worth of a business does not fall by the amount of the expenditure on the asset, Simons would not favor allowing an immediate deduction for the full outlay. But since the value of the asset is just the present value of the future after-tax earnings it will generate, depreciation results in partial double-taxation of the future earnings.

would impose some near term costs on the federal budget. However, the additional investment, employment, and wages that would result from the reduction in the tax portion of the cost of using capital would eventually result in a recovery of most or all of the apparent "static" revenue loss.

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There are ways to approximate expensing, or to move closer to it, that have less short run budget impact. One idea is to allow businesses to deduct more of their capital purchases from income early on. The present tax code already allows some acceleration of depreciation schedules on many assets compared to straight-line depreciation (the 200%-declining-balance method on 3-, 5-, 7-, and 10-year property, and the 150%-declining-balance method on 15- and 20-year property). Further acceleration could be provided by adopting depreciation methods with more "front loading" of the deductions or by shortening asset lives. Accelerating the rate at which these outlays can be deducted from income is a move toward expensing, but not so powerful as expensing itself.

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A "neutral cost recovery system" (NCRS) is an alternative to expensing that would be equally powerful at encouraging investment, but with less short term budget impact. NCRS would provide augmented write-offs that are taken over time but that have the same present value as expensing. One method would pay interest on unused depreciation amounts at a roughly 3.5% real rate plus inflation. Neutral cost recovery would provide less of an up front deduction for businesses than immediate expensing, in exchange for higher deductions later on. The outyear "static" cost would be offset as added capital formation boosted the economy.

Would businesses respond by increasing capital investment?

Absolutely. One of the first studies done on this subject was by IRET's founder, the late Norman Ture. Ture found that business response to accelerated depreciation options was very strong indeed.

In fact, faster depreciation is one of the most efficient ways of reducing the cost of capital and encouraging investment. Ture summed the whole thing up pretty well over thirty years ago: "More rapid growth involves the allocation of a larger share of the economy's resources to fixed capital formation. Liberalizing the rules governing the determination of depreciation charges for income tax purposes is deemed to be one of the principal measures of tax policy for this purpose."³

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³ See James R. Kee, "Preserving Growth Through Sensible Tax Reductions", *IRET Policy Bulletin* No. 73, October 1998. Also see Norman B. Ture, "Taxation and the Distribution of Income," principal paper in Arleen A. Leibowitz, edit., *Wealth Redistribution and the Income Tax* (Lexington, Mass: D.C. Heath And Company, 1967); and Norman B. Ture, *Accelerated Depreciation in the United States, 1954-60* (New York: Columbia University Press, 1967).