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## The Taxation of Capital Gains

The nature of capital gains. The "lock-in" effect. Lowering the capital gains tax and changing portfolio composition. Tax rates and the sales/dividend ratio. Savings, individual and corporate. Efficiency aspects of tax rates. Venture capital and taxation. Capital gains taxes and inflation.

Capital gains, defined as changes in the monetary value of assets, are a form of income and are therefore subject to taxation. Because of their different nature, they receive special treatment in our tax code. Up to 1969, they were taxed at a maximum rate of 25 percent. Since then, tax reforms have raised the statutory maximum rate to 35 percent, and further provisions related to the "maximum" and "minimum" taxes

can make the effective rate as high as 49.1 percent for some taxpayers. Recent discussions of tax reform, both in public forums and among economists, have directed much attention toward this issue. This is due partially to the complexity of the form of taxation and to its impact on the process of capital accumulation. But the considerable vigor with which the debate has been carried out primarily reflects the fact that capital gains are concentrated among the wealthy. They appear to be a natural target for redistributive efforts, apparently devoid of the adverse incentive effects of high labor income tax rates.

One of the basic lessons of economic theory teaches us that it is best to concentrate taxes on items in fixed quantity. Capital gains, viewed at any moment in time, are independent of any individual's actions. The only decisions concern whether or not to sell the asset and subject the gains to taxation. Apparently, from an economic standpoint, the real allocation of productive resources would be unaffected.

As we shall see, however, the study of resource utilization cannot be limited to the momentary viewpoint. Capital gains taxation, along with the taxation of ordinary interest income, may have severe effects upon savings and investment. Both the magnitude of aggregate savings and the form in which it is embodied will be sensitive to the tax rules. These issues are particularly important at a time when the question of a long-run "capital shortage" is ever-present. Other aspects of our current tax system, analyzed in this volume, also have important implications for this problem.

Perhaps the most widely discussed aspect of capital gains taxation is the "lock-in" effect. This means that an investor who has experienced a capital gain has an incentive not to realize this gain through a sale. Although other, superior, investment opportunities may be present, he cannot take advantage of them without subjecting himself to taxation. The fear of inefficiency is, therefore, two-fold. First, the lock-in effect causes a departure from the individual's optimal portfolios and a consequent misallocation of risks. Second, the fact that funds may be locked in may prevent some socially worth-

while new ventures from being able to raise the necessary capital. These are not misallocations between accumulation and consumption, but rather are inefficiencies within the investment process itself.

Finally, as mentioned above, the nature of capital gains income has required that it be taxed at realization rather than continually, on an accrual basis. This creates several complicating factors that make the analysis of the equity and efficiency implications of capital gains taxation difficult. Capital gains are taxed at lower rates than ordinary income. The fact that the tax may not be paid until a much later date makes the effective rate of taxation even lower. On the other hand, inflation causes nominal asset values to grow faster than real values. (Recent experience shows that nominal values may even grow while real values decline.) Since the full nominal gain on an asset is subject to the capital gains tax, the effective rate of taxation may actually be much higher than the statutory rate, even when one accounts for the benefits of deferral. Modest increases in the rate of inflation can cause drastic shifts in the effective tax rate. In inflationary times, therefore, there should be little surprise that the method of capital gains taxation arises as a serious public issue.

This chapter will try to analyze each of these controversial aspects of capital gains taxation—the static and dynamic efficiency of resource allocation, the allocation of risks and willingness to undertake them, and the effective rate of taxation in the presence of inflation. It will bring to bear such facts as exist, and will point toward the types of evidence and analyses necessary before these questions can be definitely resolved.

## **EFFICIENCY ASPECTS OF CAPITAL GAINS TAXATION**

Apart from redistribution, the dual purposes of any tax structure are to raise revenue and to improve the pattern of resource allocation. When one considers financial assets and

their role in the allocation of risk-bearing, as well as alternative uses of productive resources, the many facets of this problem become apparent. This section outlines some of the ways in which the allocation of society's resources is affected by the provisions of the capital gains tax.

### Static Efficiency and Revenues

Capital gains are a reflection of past economic activity. If the taxing authority could recognize gains independent of realization, capital gains could be taxed without altering any economic incentives in the short run. However, because revaluation of assets is too costly to be undertaken on an annual basis, taxes can be avoided until the gains are realized.<sup>1</sup> Even in the short run, the allocation of resources is affected by the endogeneity of this decision.

Lock-in effects are not, however, limited to the short run. Indeed, the longer an investor has locked himself into an asset, the stronger is the incentive to continue to hold it. To evaluate the efficiency and revenue aspects of lock-in effects, we need to dissect the decision to sell an asset at any point in time from the individual's point of view. Once we have a theory of individual behavior, we can compute investors' sensitivity to the rules of capital gains taxation, and the effects of their actions on the economic environment in the longer run.

Consider an individual who owns a variety of financial assets at some moment in time. It is probably not a bad approximation to assume that he knows the market value of each of these assets, and how much of a gain (or loss) has accrued to them since the date they were acquired. He should also know his tax status and, in particular, the rate of taxation that would apply to the gains it realized. Another important factor is his tax status in future years. Someone who knows that his capital gains rate is unusually low is more likely to sell than is another taxpayer, with the same rate, who believes it to be

constant. Finally, the individual is assumed to have beliefs about the future returns on his assets and their relationship to the rest of his income.<sup>2</sup>

With this arsenal of data and conjectures in hand, the individual must decide which of his assets, if any, to sell. Obviously, this is a complicated problem, and few individuals actually attempt a fully systematic comparison of alternative courses of action. Nevertheless, it is clear that a lower capital gains tax encourages switching within a portfolio. Selling to finance consumption is influenced positively in the short run, but negatively through the perception of permanently lower tax rates and therefore higher yields.

The estimation of the effect of capital gains taxation on stock selling is a difficult task for the economist. Data describing the complete asset position of households, including accrued gains, is not available. In any one year, only the tax rate applicable for that reporting period is calculable, and even this is tricky. The possibilities for realizing gains primarily in years when marginal rates are low cannot be ascertained from this type of data.

To my knowledge, the only systematic attempt toward a quantitative study of this problem is the recently completed paper by Feldstein, Slemrod, and Yitzhaki (1978), referred to below as FSY. Their information is derived from a sample of tax returns in 1973 on which capital gains information is specified in detail. Their technique is to compute a marginal tax on capital gains applicable to each individual, and to use this rate, together with other aspects of the tax return, to predict the quantity sold and the gain realized.

Let us consider sales first. The quantity of stock sold depends, first of all, on the amount of stock owned. Wealth is not reported, and therefore FSY use dividends as a proxy. If all individuals were to have the same ratio of dividends to stock ownership, this would not affect the results. However, there are two complicating factors. Wealthier individuals tend to hold stocks with lower dividends, on average. Moreover,

within a wealth and income category, the ratio of dividends to the value of stock is highly variable across individuals.

Both of these factors affect the interpretation of FSY's results.<sup>3</sup> Wealthier individuals sell a lower percentage of the value of their stock in any given year than the less wealthy investors. They also face higher capital gains taxes, on average. Measuring their wealth by dividends tends to overstate the true ratio of sales to wealth, and therefore to understate the true depressive effect of their higher taxes on the sales/wealth ratio.

Nevertheless, their results are striking, because they find an extremely large effect of the estimated tax rate on the sales/dividend ratio. The ratio of sales to dividends is about 2. Since dividend yields average .03 per annum, the overall turnover rate must be around .06. FSY estimate that a 10 percent increase in a taxpayer's marginal capital gains rate (e.g., from .25 to .35), other things equal, will decrease the sales/dividend ratio by 6.7. This is obviously implausible. Other forces must be hidden in their methodology.

The primary candidate is the idea that those taxpayers facing high marginal tax rates in 1973 knew that they were only temporarily high, and therefore postponed any realization of capital gains. If this were the case, a change in the tax rules that was regarded as permanent would lead to a pattern of realizations substantially closer to the actual than the FSY estimate would have us believe.

A full analysis of this issue would require data that followed each taxpayer in the sample over several years. This is not available at present, nor is it likely to be in the near future. Still, even with the sample used by FSY, some evidence of the presence of this effect can be ascertained. If it is important, it should be the case, for example, that many individuals have capital gains at or just under the level of \$50,000.

In 1973 the first \$50,000 of capital gains was taxable at the rate of 25 percent, while anything over that amount was taxed at half the ordinary income rate which, for most such tax-

payers, is close to 35 percent. If there is a good deal of intertemporal substitution in the timing of realizations, we should expect individuals to avoid the higher rate by smoothing out their pattern of gains below the \$50,000 ceiling. Extremely wealthy taxpayers, on the other hand, knowing that they will be above the \$50,000 ceiling all the time, will not attempt to avoid the high marginal rate by intertemporal substitution. By utilizing a more complex functional form that accounts for the overall structure of capital gains taxation, and not just the marginal rate, it might be possible to infer the gains that would have been realized had the rate been constant, or had the schedule of rates been smoothly increasing in the amount of the realization.

The FSY methodology can be used to simulate revenue effects of capital gains taxation, but the results must be interpreted with care. The most important underlying determinant of realizations is the distribution of unrealized gains latent in the asset position of each investor. When FSY look at the variation in realizations in response to lower rates, they are implicitly varying these latent gains as well. Their predictions, therefore, tend to understate the true response in the short run because, at the date the rates are lowered, the unrealized gains of the taxpayers are a higher proportion of their wealth than those of taxpayers who were in the same bracket before the change. They are thus properly viewed as the long-run effects that could be expected if there were no intertemporal substitutability of gains or of other income.

### **Dynamic Efficiency**

The taxation of corporate profits, interest income, and capital gains has a great impact on the rate of return to saving. At a time when many economists have pointed toward a deficiency of savings which curtails economic growth, and which may be due in part to other features of the fiscal process, it is especially important to recognize the impact of capital gains taxation on the process of capital accumulation. The argu-

ment for a deficiency of savings, and a consequent dynamic inefficiency, is very simple. The real marginal product of capital has been estimated to be at least 10 percent. On the other hand, the net of tax real return to savings is much lower, say, 2 to 3 percent at most. Therefore, by encouraging more savings, society will reap a larger return than the amount necessary to compensate the taxpayer whose income is taken for this purpose.

There are two distinct channels through which the rate of taxation of capital gains affects this divergence between private and social returns. The first is prospective. An investor, when deciding how much to save, computes the effective yield he expects on each asset. Clearly, lower capital gains taxation would raise this yield and generate more savings.

Econometric work on the effects of interest rates on savings is an old subject, but not one which can properly be viewed as having reached a consensus. Yet, even if the response of savings to the interest rate is zero, the life-cycle theory of consumption implies that there will still be a substantial welfare impact of such distortions, because retirement consumption will be greatly depressed.<sup>4</sup>

Much of private savings in the United States takes the form of retained earnings of corporations, and this brings us to the second depressive effect of capital gains taxation. Though the theory of finance has not produced a consistent account of the dividends/retained earnings choice, it is generally recognized that increases in the capital gains tax encourage dividend payout at the expense of retained earnings.

Let us trace the effects of a shift of \$1.00 from dividends to retained earnings carefully, from the viewpoint of a typical investor. If he has \$1.00 less in dividends, he will have a tax savings equal to his marginal tax rate (say, .5 for simplicity), and his current income will be lower by \$0.50. What will be the change in the value of his shares? On one hand, the market should be willing to pay \$1.00 more for a firm with \$1.00 of extra capital; if not, this firm could be profitably taken over, as it would represent a cheaper source of capital than

direct purchase. On the other hand, we can consider the problem facing our typical investor. Call the increase in the value of the firm due to this \$1.00 of extra capital "V." If the investor sells his shares, he must pay the capital gains tax. His net yield, therefore, is  $.75V$ , assuming he is paying at half his marginal rate on ordinary income. In order for the investor to be indifferent between having the dividend or having the firm keep the \$1.00 in retentions,  $.75V$  must be  $.50$ , or  $V$  must be  $.67$ . Apparently, if  $V$  were above  $.67$ , dividends should be reduced, and if  $V$  is below that level, they should be increased.

Thus, we have two theories of the valuation of retained earnings that are in direct conflict—and the problem remains one of the principal unresolved puzzles in the theory of finance today.<sup>5</sup> On either interpretation, however, the individual's pre-tax wealth increases by more than \$0.50, and, net of tax, the present value of his lifetime consumption could be increased by something between \$0.50 and \$1.00.

Will savings be higher when the individual has \$0.50 now, in his pocket, or a higher level of wealth embodied in a higher valuation of his portfolio? Although this is an empirical question, I will argue that retained earnings will be a more powerful stimulant to saving in the aggregate. The firm has already invested the \$1.00 in productive capital; total savings is this \$1.00, minus any induced increase in private consumption out of wealth, which is unlikely to be more than \$0.20. Thus, \$0.80 seems to be a safe lower bound, well above the amount that could be saved by the individual out of his dividend. We must note that this is not the whole story. The government, a forgotten figure in this scenario thus far, has \$0.50 of extra revenue in the dividend case, and only a claim against a future, potential, capital gain if the earnings are retained. A full analysis would have to account for government saving, and for the behavior and indirect impact of government debt.<sup>6</sup>

There is a further, very important, aspect of financial markets that bears upon the value of  $V$ . There are many tax-

exempt investors in the market. They are often large, and powerful enough to influence corporate financial policy. From their point of view, if  $V$  were less than one they would not be satisfied. They should insist on a higher dividend. Since these investors do hold a large portfolio of firms whose retained earnings are positive, can we conclude that  $V = 1$ ? If not, what is the role of debt finance and its risks for holders of equity in the preferences of these tax-exempt investors?

Coming back to the main line of the argument, a reduction in the rate of capital gains taxation should increase private sector savings by encouraging retained earnings at the expense of dividends. If FSY are right, and the revenue loss would be small, or even converted into a revenue gain, this savings can arise with only the loss of the uncollected revenue on dividends. Thus, dynamic allocative efficiency can be greatly improved via a cut in the capital gains tax rate.

### Efficiency of Portfolio Allocation

Individuals switch their holdings of securities in response to many forces. Increases in wealth, whether current or anticipated, may induce a person to invest in a riskier portfolio, even though his expectations have remained unchanged. New information, disseminated marketwide, will alter security prices, and investors will have to reallocate their portfolios as a result. If the individual regards the new information as not having been fully capitalized into market prices, speculative motives will affect his behavior.

The traditional theory of finance determines an optimal portfolio at each moment in time. But the "optimal" portfolio is never actually attainable. Transactions costs, complicated by indivisibilities or economies in round-lot trading, delays, and, especially, capital gains taxes due upon realization, may keep the agent from maintaining the desired holdings at every moment. The common feature of all of these impediments is that they imply a threshold nature of the decision to sell one asset to acquire another. The gross benefit

derived by the individual must exceed a certain positive cost if a sale is to be undertaken.

The inefficiency of capital gains taxation in this regard is that it prevents some mutually beneficial exchanges of financial assets from taking place. Before condemning capital gains taxation on these grounds, however, we should carefully examine our concept of efficiency. One of the reasons that two investors may decide to trade assets is that they have different beliefs about the future returns. *Ex post*, the seller's gain will have been the buyer's loss. Thus, although economists would tend to prefer a definition of efficiency that recognizes *ex ante* valuations as indicative of the true social surplus to be obtained, the nature of financial assets is such that realizations must necessarily fall short of this mark. Is capital gains taxation useful for precluding trades that are only marginally valuable *ex ante* and counterproductive *ex post*?

Leaving such questions aside, the idea that sales are undertaken when their gross valuation exceeds the taxes and direct costs of transactions may provide a method for estimating these gross values and, indirectly, the propensity to trade when taxes will be lowered. One could look at transactions made by investors close to the time that brokerage commissions were changed, in order to measure the value of switching investments to the marginal trader.

### Reaction of Markets to Changes in Capital Gains Taxation

There has been a great deal of public discussion about whether the historically low equity prices of the 1970s can be explained by the higher capital gains tax rates prevailing since 1969. In this context, the prospect of reverting to pre-1969 methods of capital gains taxation seems tempting.

Whether or not a significant effect on equity prices can be expected turns on the same question as the dividend/retained earnings choice which we examined in the context of capital

formation above.<sup>7</sup> If the "takeover" theory of valuation is right, there will be no effect. Shares are already valued at the replacement cost of the capital stock, plus corporate goodwill. But if the "dividend" theory is right, the value of corporate stock represents the present value of extracting capital from the firm and returning it to the owners of equity. This may be substantially less than the replacement cost of the capital if this extraction process involves the payment of capital gains and interest income taxes.

From the viewpoint of an owner of shares with an unrealized gain, the tax reduction encourages sale. The proceeds of the sale will probably be reinvested in another financial asset, so the net pressure on stock prices should be zero, or slightly negative. From the viewpoint of a prospective owner, lower capital gains taxes increase the anticipated yield and drive up the willingness to pay. On the whole, the effect is clearly positive, but individual securities in which large quantities of unrealized gain are converted may actually decline in value, because of the first effect.

Another factor to be considered is that much of the activity in stock trading, and a considerable—though smaller—proportion of ownership, is in the hands of tax-exempt traders. Some of these are charitable or educational institutions, others are pensions. The presence of these types of investors will be a mitigating force. Large upward price movements that cannot be sustained in the long run will cause them to switch out of equities and into other assets. Given the tax advantages of capital gains, it is hard to see why these institutions are so heavily invested in shares with relatively low dividend yield. Unless these shares present a pattern of returns that cannot be achieved through another combination of market assets, one would expect tax-exempt institutions to specialize. Put even more strongly, one would expect some firms to find that, by offering a high dividend and little prospect of capital gain, they can attract capital from these institutions at a favorable price. Similarly, other firms should have a zero dividend, and should be owned exclusively by private,

taxable, investors. Why this doesn't happen, and the implications of the mixed market we do have for predicting the effects of capital gains taxation, is a substantial problem and a topic for future research.

If higher equity prices do occur when capital gains taxation is decreased, it is still problematic as to whether they will spur new investment. Few corporations have issued new equity in recent years. Therefore, the cost of capital is not likely to be responsive to equity prices in the short run. Only in a longer-run situation, where the balance in investors' preferences between debt and equity must also be maintained, higher equity prices should spur investment.

### Capital Gain Taxation and the Undertaking of Risks

Capital gains taxation makes the government a partner in the portfolio of every investor. The government shares in profits and, up to a certain point, shares in losses. Because of inflation, the government's bearing of real losses, which show up as nominal gains, is significant. It is well known that in such cases the taking of risks is encouraged. It is, therefore, surprising that high rates of capital gains taxation have been blamed for cutting off the supply of venture capital.

There are several reasons why this charge might, in fact, be correct. First, capital gains taxes increased, while other interest income taxes remained largely constant. The shift, therefore, was away from new ventures and small, non-dividend paying, corporations, due to a shift in relative taxes, although an overall increase in taxation might have reversed the effect. Second, investors in risky prospects of this type are optimists. They tend to believe that they will make more of a profit than they actually will, on average. Therefore, they believe that the government's capital gains taxation, even including loss-offset provisions, is an unfair gamble. Third, unlike a stockholder who intends to invest for a long time—long enough so that nominal gains are sure to be positive because of inflation—a venture capitalist is going to have

a large, quick, loss if he is unsuccessful. This means that the loss will be nominal as well as real, and that the loss will exceed the ceiling permissible for write-offs against current income under the capital gains tax. Thus, the bias again favors the government's side of the balance sheet. For these reasons, venture capital markets and new equity issues by small corporations have come to a virtual standstill—and socially valuable new prospects are not being explored, with adverse consequences on technical progress and employment.

One may ask why, in light of the discussions above of tax-exempt investors, the valuable new ventures are not financed by them. The answer is that, as fiduciaries, they tend to be conservative investors, and many are forbidden from such investments, either by state law or by their own trustees. The venture capital market must depend upon private investors facing capital gains taxation.

#### CAPITAL GAINS TAXATION IN THE PRESENCE OF INFLATION

The delay in taxes until the realization of capital gains brings the effective rate below the statutory rate. However, since the tax is based on nominal capital gains, the actual real return on the asset is dramatically reduced. The same adverse effect of inflation applies as well to the taxation of interest income.

The higher capital gains tax liabilities imposed by inflation have been documented by Feldstein and Slemrod (1978). They find that over 40 percent of the actual capital gains taxes paid in 1973 would not have been due, had the cost bases been increased to reflect the changing price levels. Moreover, Feldstein and Slemrod have documented that the bias is to favor wealthier taxpayers in comparison to poorer

ones, at least as far as one can tell based on realizations. The real capital gains realized by taxpayers with adjusted gross incomes of over \$500,000 are more than 80 percent of their nominal gains; whereas for taxpayers whose adjusted gross incomes are less than \$100,000, real capital gains realized are negative, although nominal gains are positive. Some of these differences reflect the different holding periods on assets sold across income groups. Very wealthy taxpayers realize very little of their accrued gain on assets held for longer periods of time. Their capital gains tend to reflect short-term speculative activity, and their success at this activity may be based on information superior to that available to the average investor. To some extent, it may reflect certain types of ordinary income which can be classified as capital gains for tax purposes, and therefore receive preferred treatment.

The formula under which capital gains taxes are computed causes an interesting contrast between the response of real net yields on assets subject to this tax and those subject to ordinary income taxation. Surprisingly, the capital gains tax tends to make the real net yield *less* sensitive to changes in the rate of inflation than the yield on interest-bearing assets. To my knowledge, this point has not been made previously, and some authors have even implied the contrary.

Consider an asset whose real interest cost to the borrower is 6 percent and whose nominal yield is higher, due to inflation. Let us assume, for simplicity, that the investor faces a 50 percent rate on interest income, and a 25 percent capital gains rate. At a 2 percent rate of inflation, a bond with a nominal yield of 8 percent has a net after-tax yield of 4 percent and a real yield of 2 percent. If the rate of inflation were 6 percent, so that the nominal yield rises to 12 percent, the real net yield would fall to zero ( $12 \times .5 = 6$ ).

The case of a capital asset is markedly different. If it is held for ten years, the corresponding real net yields would be 4.3 percent per annum and 3.7 percent per annum, respectively.

## CONCLUSION

The discussion above indicates that the effects of capital gains taxation take various forms. Some of these are easily foreseen, but others are uncertain, either because sufficient evidence has not been marshalled as yet, or because the underlying theoretical structure remains to be developed. There are four principal implications of capital gains taxation which have been traced out. First, like any other type of interest income tax, it might curtail private savings, and in any case it would distort the lifetime expenditure decisions of households. Second, because of the relationship between corporate retained earnings and individuals' tax liabilities, a higher capital gains tax encourages higher dividend payout rates, discouraging further the aggregate saving of the private sector. Third, capital gains taxation places a barrier toward a more flexible portfolio allocation process, although it was argued that the adverse effects of this inflexibility can easily be overstated. And finally, the fact that capital gains are based on the nominal accrued value of assets makes the effective rate of taxation much higher than the statutory rate when the rate of inflation is substantial. However, this bias affects all forms of interest income taxation, and it was shown that capital gains are somewhat less vulnerable than nominal interest income.