NBER WORKING PAPER SERIES

SHOULD TAX REFORM LEVEL THE PLAYING FIELD?

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Working Paper No. 2132

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
January 1987

This paper will appear in the 1987 Proceedings of the National Tax Association. I am grateful to Jim Poterba for helpful comments on an earlier draft. The research reported here is part of the NBER's research program in Taxation. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

While frequently invoked, the level playing field ideal and its practical embodiment in tax legislation has received relatively little analysis. This paper examines the economic arguments surrounding the level playing field doctrine. I conclude that levelling the playing field is an issue of little economic importance and that efforts to level the playing field like those recently enacted are likely to create more important nonneutralities than those they eliminate. They may however contribute to the perceived fairness of the tax system.

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The 1986 Tax Act represents the most significant reform of the Federal Income Tax since the second World War. Reforms affecting the taxation of business income are a major feature of the Act. Perhaps no phrase better epitomizes the animating philosophy behind these reforms than "level playing field". The initial Treasury Department Tax Reform proposal in November of 1984 put the level playing field argument clearly and highlighted its importance:[1]

> The taxation of capital and business income in the United States is deeply flawed. It lacks internal consistency and is ill-suited to periods when inflation rates have varied and been unpredictable. It contains subsidies to particular forms of investment that distort choices in the use of the nation's scarce capital resources...The Treasury Department's tax reforms would rationalize the taxation of income from business and capital. An overriding objective is to subject real economic income from all sources to the same tax.

It is noteworthy that in putting forth its proposal the Treasury concentrates only on the relative taxation of different types of capital assets and not at all on the overall level of the tax burden placed on investment. This logic carried over into the legislation that was actually enacted. The desire to level the playing field and achieve neutrality was the principle justification offered by proponents of the decision to abolish the investment tax credit (ITC), scale back ACRS depreciation benefits and reduce corporate tax rates.

While frequently invoked, the level playing field ideal, and its practical embodiment in tax legislation has received relatively little analysis. This paper examines the economic arguments surrounding the level playing field doctrine. I conclude that levelling the playing field is an issue of little economic importance and that efforts to level the playing field like those recently enacted are likely to create more nonneutralities than they eliminate. In the process they will impair both economic efficiency and equity, though they

may make a contribution to the perceived fairness of the tax system.

The first section of the paper reviews the available studies and concludes that the economic gains from levelling the playing field are, even on the most favorable assumptions, very small--about equal to the statistical discrepancy in the GNP accounts. It also argues that the effective tax rate calculations which guide efforts to implement the level playing field doctrine have no demonstrable relationship to actual investment decisions.

The second section describes recent research suggesting a number of reasons why effective tax rate calculations like those commonly used in tax policy debates prove to be very poor indicators of investment incentives. These include problems in measuring depreciation, leverage effects, and differences in hurdle rates across firms.

The third section notes that the level playing field doctrine as it is usually discussed omits consideration of a very large fraction of total investment. It also considers a dimension of neutrality not usually recognized in tax policy discussions--neutrality between new and old capital. I conclude that the nonneutralities between housing and non-housing capital, tangible and intangible investments, and the present and the future created by recent tax policies, dwarf in importance the interasset neutrality issue focused on by proponents of the level playing field doctrine.

The fourth and concluding section of the paper suggests alternative principles to the level playing field that could serve as touchstones in future tax policy debates.

I. Does Levelling The Playing Field Matter?

The argument for levelling the playing field by having a neutral tax system has been stated many times. Profit maximizing investors will carry on different types of investment to the point where they receive the same after tax rate of return. If the tax system taxes different investments differently, this will mean that pre-tax returns will not be equalized. Since the social return to an investment is measured by its pre-tax return, an inefficiency will be created. Increasing investment in heavily taxed activities at the expense of investment in lightly taxed activities would raise the level of output that the economy could produce.

As a matter of theory, the argument is completely correct. But its importance depends on the magnitude of the deadweight losses generated by non-neutral taxes and on the ability of economists to measure the burden the tax system places on different types of investment. I take up these two questions in turn.

The Costs of Nonneutrality

Nonneutralities in the taxation of capital income cause distortions of two types. Firms may produce inefficiently, using less rather than more productive types of capital. There may also be distortions in the mix of products which the economy produces if inputs into some products are taxed more heavily than inputs into others. Evaluating these distortions requires a model embodying assumptions about the extent of substitutability between different types of capital and different products and about the effective tax rates on different types of investment.

In perhaps the most elaborate studies yet carried out, Don Fullerton and

Yolanda Henderson (1986) utilize a model that allows for 38 different capital asset types to be used in 18 different industries. Fullerton and Henderson allow for differences in financing policy across industries, the effects of personal taxation and a variety of other institutional complexities. They perform fairly elaborate sensitivity analysis regarding their assumptions about asset and product substitutability. Their conclusion is that "these multiple distortions impose a welfare loss that is still below one percent of national output." In fact, most of their calculations suggest that the welfare loss from tax nonneutralities is on the order of .3% of GNP. To put this figure in some perspective, it is helpful to note that it is comparable to the typical statistical discrepancy in the GNP accounts.

Results similar to those of Fullerton and Henderson have been obtained by a number of other investigators. Gravelle (1981) and Auerbach (1983) estimated the magnitude of the nonneutralities arising from distortions in the composition of investment caused by corporate taxes at between .1 and .15 percent of GNP, or about $5 billion. Hendershott (1986) puts the deadweight loss arising from deviations from the level playing field ideal at .11 percent of the capital stock which is eqivalent to about .25 percent of GNP.

Even these rather small figures substantially overstate the potential gains in efficiency achievable by levelling the playing field. They refer to the gains that would be achieved if a perfectly neutral tax bill were enacted and capital were reallocated instantly between asset types and sectors of production. Neither of these premises is tenable. As I discuss in more detail below, tax reforms are unlikely to achieve full neutrality even using the measuring rods of their proponents. Estimates of the welfare gains from actual reforms are often only a small fraction of the preexisting inefficiency. And

the process of reallocating capital between asset types can in reality only take place through a redirection of new investments. This takes a long time. The conclusion is that even on optimistic assumptions, the welfare gains from levelling the playing field are very small.

What Do Effective Tax Rates Measure?

The premise of the neutrality calculations described above is that effective tax rate calculations are indicative of the impact of the tax system on investment. Otherwise, there would be little basis for concluding that nonneutralities exist when there are interasset differences in effective tax rates. Surprisingly little empirical research has examined the validity of this premise and the work that has been done does not support it.

Bosworth (1985) subjects effective tax rate and cost of capital measures of the types employed in the Fullerton-Henderson and other similar studies to a simple test. He tries to correlate the change in the volume of cyclically adjusted investment in different types of capital assets between 1980 and 1984 with changes in their effective tax rates. He finds that, "There is no significant correlation between those assets that have a higher than expected capital stock and the relative magnitudes of tax reduction."[2] He does find some indication that there is an association between overall changes in costs of capital and investment. The implication of Bosworth's finding is that there is no demonstrable link between the calculated effective tax rates and the composition of investment.

The point can be seen without elaborate calculations. Effective tax rate measures such as those presented by the Treasury invariably suggest that

structures are taxed more heavily than investment. Indeed this was a major rationale offered for the repeal of the investment tax credit. Yet, it is clear that most tax shelters are based on structures rather than equipment investment. It is in structures, not equipment, where the problem of oversupply seems to have been most serious in recent years.

The weak relationship between effective tax rates and the composition of investment can be interpreted in two ways. One possibility is that taxes do not exert an important influence on overall investment. An alternative interpretation is that effective tax rate measures of the type that figure prominently in neutrality debates do not adequately measure investment incentives. There are strong reasons to prefer the latter interpretation.

First, there is a strong and demonstrable relationship between the total volume of investment and tax policies. Calculations of cyclically adjusted investment such as those presented in Blanchard and Summers (1984) indicate that up until uncertainties about retroactive repeal of the ITC started to discourage investment in early 1986, investment was abnormally strong during the current recovery despite unprecedented high real interest rates and strong foreign competition for US producers. Almost any theory of investment whether based on cash flow, the cost of capital, or Tobin's q predicts that such effects should be present. Second, there are a number of reasons to doubt that calculated effective tax rates give very satisfactory indications of the impact of taxation on the allocation of investment. I take up these issues in the next section.

II. Effective Tax Rates and Investment Incentives

As an empirical proposition, effective tax rate measures do not seem to be

strongly associated with the composition of investment. This is probably because of problems in their construction. In this section I highlight three difficulties with the standard measures of effective tax rates. While they all could be addressed in future research and policy evaluation, it is not clear that this is worthwhile, given the rather small stakes involved in neutrality debates.

Measuring Depreciation

The central factor driving neutrality calculations is a comparison of the generosity of the depreciation allowances offered by the tax system on different types of assets with true economic depreciation. Unfortunately, neither tax nor true depreciation is easily measured in practice. The standard approach to measuring tax depreciation is to assume that assets are put in place and depreciated once without ever being resold. While this assumption is probably appropriate for equipment it is surely inappropriate for the structures investment which were allegedly penalized under pre-1986 law.

Gordon, Hines and Summers (1987) document that churning plays an important part in tax planning regarding investments in structures, by showing that many of these investments are initially depreciated using straight line rather than accelerated schedules. This is only optimal for firms if they plan to resell the assets. Gordon, Hines and Summers also document that taking account of the possibility of churning can have dramatic effects on effective tax rate calculations. At low inflation rates, taking account of churning can reduce effective tax rates by more than 20 percentage points.

More difficult than the measurement of tax depreciation is the measurement

of economic depreciation. The standard approach is to define the rate of economic depreciation as the expected rate of decline in an asset's price. The data used in almost all evaluations of tax neutrality come from the pioneering work of Hulten and Wycoff (1981) who utilized used asset prices to estimate rates of economic depreciation. The difficulty is that data on used asset prices are available only for a small subset of assets. As a consequence most of the depreciation estimates provided by Hulten and Wycoff are extrapolations not based on any data on the asset in question. Of the 38 asset categories used in most studies, Hulten and Wycoff had direct information available on less than 10. Hulten and Wycoff did as much as probably can be done with the data they had at their disposal. But it is appropriate to attach a great deal of uncertainty to their calculations.

There is also a point of principle regarding the measurement of economic depreciation. Jeremy Bulow and I (1984) argue that in defining economic depreciation it is important to take account of the reality that used capital prices decline at an uncertain rate. While the tax system shares in the return to capital, it does not share in the risk associated with variations in the rate of asset price decline. This is because depreciation allowances are permitted according to an ex-ante schedule, not according to what actually happens to an asset's price. As a consequence, allowing ex-ante depreciation at a rate equal to an asset's expected rate of price decline is not equivalent to ex-post depreciation. True economic depreciation in a risky environment requires the addition of a risk premium to physical depreciation rates. On average, our calculations suggest that this adjustment roughly halves appropriate depreciation lifetimes.

Leverage Effects

Standard effective tax rate calculations presume that all assets are financed in the same way, or that there are no tax favored means of financing. In fact, as Bosworth (1985) and Gordon, Hines and Summers (1987) stress, there are strong reasons to believe that debt is tax favored over equity, and that some assets are able to carry much more debt than others.

Debt is tax-favored over other forms of finance because interest payments are tax deductible whereas payments to other claimants are not. The deductibility of interest would have no effect if the tax advantage to borrowing were fully offset by a tax disadvantage to lending. This appears not to be the case. A large fraction of corporate bonds are held by pension funds, non-profit institutions and other tax-exempt entities. Market evidence comes from the fact that long term municipal bonds which are tax free carry yields that are quite close to those of taxable securities. This means that any transaction that uses debt finance is subsidized by the tax system, since the government loses much more from the deductibility of interest than it collects from the taxation of interest income.

Can different assets carry different amounts of debt? As a matter of logic, the extent to which an asset is financed with debt depends on a tradeoff of the tax advantage to debt, and the financing costs associated with its use. These costs primarily involve the risk of bankruptcy. It seems likely that liquid assets like real estate, automobiles or airplanes, where there are dense secondary markets, will be much easier to borrow against than dedicated equipment, where resale is likely to be difficult. To the extent that liquid assets are easier to borrow against, they receive a tax advantage. The

magnitude of this tax advantage will rise with the level of nominal interest rates.

These leverage effects are potentially quite important. Fullerton and Gordon (1983) report that the debt to capital ratio of different industries varied between .08 and .79 in 1973 with industries like real estate, which rely on liquid types of capital assets, having the highest ratios. Gordon,Hines and Summers (1987) report calculations indicating that even a relatively modest difference in the ease with which structures and equipment can be borrowed against, is sufficient to offset equipment's lower effective tax rate. It is almost certainly leverage effects that explain why commercial real estate is so frequently used as a tax shelter vehicle.

Defenders of standard effective tax rates point to Auerbach's (1984) conclusion that corporations with higher ratios of structures to equipment do not have higher debt to equity ratios as evidence that leverage effects may be unimportant. This finding is not conclusive. It probably results from overaggregation of capital assets. Transportation equipment, which accounts for a substantial fraction of equipment investment, is probably easy to borrow against, where as public utility, mining and industrial structures, which account for more than half of all structures investments, are probably hard to borrow against. A finding that debt to equity ratios do not depend on the overall volume of structures investments is not sufficient to rule out the possibility that the detailed composition of investment greatly affects a firm's ability to borrow. There is also the additional difficulty with Auerbach's empirical work that he is unable to treat leases as a form of debt obligation.

On balance, it appears likely that differences in the ease of borrowing, although difficult to measure, exert an important influence on the cost of

capital for different assets. If this is the case, equalizing effective tax rates that do not take account of leverage effects is not likely to increase economic efficiency. This is almost certainly the case with respect to proposals to raise the taxation of equipment relative to commercial structures.

The Discounting of Tax Benefits

Standard effective tax rate calculations presume that firms depreciate prospective depreciation tax shields at a real rate of 4 percent. The logic behind this assumption, to which the calculations are quite sensitive is rarely spelled out. Summers (1987) provides empirical evidence that the assumption is inappropriate. A survey of firms' capital budgetting practices reveals that most use real returns of above 10 percent to discount prospective tax benefits. Furthermore the rates used by different firms vary widely.

There are two implications of this finding. First, the wide variation in the hurdle rates of different firms suggests that even if effective tax rates are equated across firms, the pre-tax return to investment may not be. Second, the generalized use of high discount rates suggests that the benefit of front loaded investment incentives like the ITC may well be understated in conventional calculations. Conversely, the attractiveness to investors of schemes like indexing depreciation allowances which backload tax benefits may be overstated. More generally, a further source of error in effective tax rate calculations is introduced.

The analysis in this section indicates that effective tax rate measures of the types used in most neutrality calculations are likely to be badly flawed as indicators of investment incentives. This makes it relatively unsurprising that

they do not seem to be associated with actual investment patterns. In particular, flaws in effective tax rate measures can easily explain why commercial structures investments have surged in recent years to become a major tax shelter vehicle despite their relatively high effective tax rate. If effective tax rate measures are badly flawed as indicators of investment incentives, equalizing the effective tax rate on different categories of investment is likely to create as many nonneutralities as it eliminates.

III. Other Nonneutralities

The analysis in the preceding sections suggests that the efficiency gains from levelling the playing field in the manner suggested during the tax reform debate are highly speculative and almost certainly very small. This section suggests several other dimensions of neutrality not usually considered in discussions of levelling the playing field that dwarf in importance the question of interasset neutrality upon which so much attention has been lavished.

Intangible vs. Tangible Investments

In striving to level the playing field by raising effective tax rates on equipment in order to bring them into equality with estimated effective tax rates on structures, land and inventories, reformers neglected an entire category of investment outlays--investments in intangibles. Intangible investments such as marketing, advertising and R&D outlays totalled more than $200 billion in 1985. These expenditures exceeded investments in structures, and dwarfed outlays on inventories and land. Although they provide benefits over

a number of years just like physical investments, firms are not required to amortize outlays for intangibles. Rather, intangible investments receive the ultimate in accelerated depreciation, expensing. Unlike other investments, firms can fully deduct the cost of intangible investments in the year in which they are made.

This means that intangible investments have a zero effective tax rate. Measures which raise the tax burden on other outlays exacerbate the nonneutrality between tangible assets which are taxed and intangible assets which are not. Failure to recognize that outlays on intangibles are expensed accounts for the widespread misconception that the tax law somehow favors capital intensive industries. This misconception is perpetuated by accounting conventions. Since firms do not amortize their intangible outlays, their profits are artificially understated, making relative tax burdens appear larger. In fact, because intangibles can be expensed, the tax law actually penalizes capital intensive industries.

Owner Occupied Housing vs. Business Investment

The services of owner occupied housing are not taxed under the Federal income tax. This creates a major tax bias towards investment in housing rather than plant and equipment. This bias is exacerbated by the ease with which it is possible to borrow to purchase housing. Achieving interasset neutrality by raising the effective tax rate on equipment outlays as was done in the most recent tax act, increases the tax distortion in favor of housing over plant and equipment. This effect is likely to be quite large. Owner occupied housing accounts for about one-third of the capital stock, more than twice as much as

non-residential structures or equipment. Its relative taxation is thus much more important for economic efficiency than the relative taxation of different classes of business investments.

New vs. Old Capital

Proponents of the level playing field doctrine typically neglect the distinction between new and old capital. The 1986 Tax Act provides an excellent example of the consequences of this neglect. By reducing the corporate income tax rate that applies to the profits earned on past investments while at the same time burdening new investment by eliminating the ITC and scaling back depreciation benefits, the Act favors old capital at the expense of new. This is ironic. Even the most ardent supply sider must acknowledge that tax incentives cannot spur the creation of old capital. However, they can and do have an important impact on new capital investment.

As Table 1 illustrates, this point is very important. While the 1986 Act raises corporate tax revenues by a total of $120 billion over five years, it also confers substantial windfalls on capital that is already in place. Despite the overall increase in corporate tax burdens, old capital actually receives tax benefits totalling $68 billion. The tax burden on new corporate capital is then increased by $188 billion.

Biasing the tax system towards old investment is neither equitable nor efficient. It is inequitable because it confers windfalls on those who invested in the past and wrote off their investments at a 46 percent rate but will be taxed on their profits at a 33 percent rate. The inequity is compounded by the fact that new investment by firms trying to compete with entrenched incumbents

TABLE 1

Corporate Tax Reform, New and Old Capital

	1987	1988	1989	1990	1991	1987-1991
Taxes on Old Capital	.8	-8.6	-17.1	-20.1	-23.3	-68.3
Taxes on New Investment	24.3	32.5	39.6	43.5	48.5	188.4
Total	25.1	23.9	22.5	23.4	25.2	120.2

Source: Author's Calculation. Taxes on new capital include Capital Cost, Minimum Tax, and some Accounting provisions of the 1986 Act. The other changes are treated as applying to old capital.

is penalized. The bias towards old capital is inefficient, because it requires major increases in the tax rate applicable to new investment.

The old capital-new capital argument can be taken too far. Blind pursuit of its logic would suggest that the corporate tax rate should be raised to near 100 percent, and that more generous investment allowances should be granted so as to preserve investment incentives. This would seem to burden old capital without discouraging new investment. However, there is a clear problem with this strategy. Like repudiation of the national debt, it has extremely adverse expectational effects. The introduction of such a policy would cause potential investors to fear that at some point in the future their investment would be labelled as old capital and the tax rate on it would be jacked up. Expectational considerations thus suggest that it would not be desirable to raise taxes on old capital too sharply.

However, it is hard to see why conferring a windfall on old capital has particularly desirable effects. In the present context, it is hard to believe that investors expect the corporate rate to fall further, or depreciation benefits to be scaled back again. Probably the expectational effects of the 1986 Act are perverse.

The Present vs. the Future

The level playing field principle focuses attention on the question of the differential taxation of different types of capital income. It diverts attention from the issue of the overall level of the taxation of capital income. Since capital investments have as their ultimate objective future consumption, taxes on capital may be thought of as taxes on future consumption. By reducing

the return available to savers and investors, they distort the choice between present and future consumption.

The available evidence suggests that these intertemporal distortions whose magnitude depends primarily on the overall level of the taxation of capital income are far more important than any intersectoral distortions that taxes may cause. In Summers (1981) I suggested that eliminating capital taxes might produce steady state welfare gains on the order of 5 percent or more of GNP. More recent work with more precisely calibrated models by Auerbach and Kotlikoff (1987) and Jorgenson and Yun (1986) suggests similar figures. These calculations neglect any beneficial externality effects which capital investment may have on economic growth.

Each of the four nonneutralities discussed in this section is probably more important than the static efficiency considerations stressed by tax reformers seeking to level the playing field. They point in opposite policy directions than the level playing field doctrine at least as it is usually discussed. This suggests the importance for economic efficiency of reducing the tax rate on equipment investment, even though this would raise the wedge between its tax rate and the tax rate on certain other classes of business investment.

IV. Conclusions

The analysis in this paper suggests that efforts to level the playing field (at least as the term is commonly understood) are not likely to contribute much to economic efficiency. The stakes are small to start out with, and the many measurement problems involved in the construction of effective tax rates make it unlikely that any large fraction of the potential gains from levelling the

playing field can be realized. It follows that in evaluating the efficiency of tax reforms, attention should be focused on the overall tax burden placed on new plant and equipment investments rather than the relative burden placed on different types of investments.

Footnotes

1. U.S. Treasury Department (1984), p. xii.

2. Bosworth (1985) p.19.

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