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ABSTRACT

The response of the economy to two major -- although in important respects offsetting -- tax reforms has been much smaller than ardent supply-side revolutionaries expected, thus suggesting that a reassessment of the grounds for revolt is in order. This paper offers such a reassessment by first discussing how the evidence from the tax reforms of 1981 and 1986 reflects on our understanding of the response to taxation -- with particular reference to savings and capital gains realizations. I then reconstruct a 1992 view about how taxes affect behavior.

A unifying theme is that the tax system does much more than alter the relative prices of real variables -- it also provides incentives to misreport income, restructure financial claims, time transactions, change the legal form of organization, and so on. For this reason, observed low tax elasticities of real variables may be due to either low elasticities of substitution or the fact that tax policy changes opportunity sets in complex ways. Disentangling these explanations requires an emphasis on the transaction-based nature of the tax system and the administration and enforcement of tax laws.

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Do Taxes Matter? Lessons from the 1980's

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1962 was perhaps the high point of the golden age of activist macroeconomic policy. Walter Heller, then chairman of President Kennedy's Council of Economic Advisers, was on the front cover of Time Magazine. The policy of tax cuts and an investment tax credit instituted in 1964 was widely credited with jump-starting an underperforming economy. The perceived power of fiscal policy was so great, and so harnessable, that the talk was of "fine tuning" the economy.

Faith in the ability of fiscal policy to assure noninflationary stable growth waned soon after 1962. The stagflation of the 1970's undermined the predictive power of the Keynesian paradigm underlying the case for an activist fiscal policy. Its theoretical foundations were shaken by Lucas (1976), who inspired a revolution in macroeconomics, and ultimately a counter-revolution which reformulated within a consistent theoretical framework the conditions under which fiscal policy could be effective. This counter-revolution notwithstanding, policymakers today are much more circumspect about the potency of fiscal policy to stabilize economic activity.

By 1982, out of the ashes of fiscal policy cum demand management, there had arisen a new phoenix. Popularly dubbed "supply-side economics," it also proclaimed the power of fiscal policy to generate positive economic outcomes. But this time the mechanism was not demand management, but rather a reduction of marginal tax rates which would unleash a torrent of additional labor supply, saving and investment. This new policy did not depend, as demand management did, on such things as "fooling" citizens into confusing real and nominal magnitudes or the fixity of prices. No, this revolution was about the power of relative prices, a subject dear to economists' hearts.

From a 1992 perspective it is clear that we were fooled again. The response of the economy to two major -- although in some important respects offsetting -- tax reforms

has been much smaller than ardent supply-side revolutionaries expected. The results of this revolution thus beg for a reassessment of the grounds for revolt, which I offer in this paper. To accomplish this, I first discuss how the evidence from the tax reforms of 1981 and 1986 reflects on the wisdom circa 1982. I then reconstruct a 1992 view about how taxes affect behavior, and conclude with some lessons for the future of tax policy and research.

A unifying theme is that the tax system does much more than alter the relative prices of real variables -- it also provides incentives to misreport income, restructure financial claims, time transactions, change the legal form of organization, and so on. For this reason, low tax elasticities of real variables may be due to either low elasticities of substitution or the fact that tax policy changes opportunity sets in complex ways. Disentangling these explanations requires an emphasis on the transaction-based nature of the tax system and the administration and enforcement of tax laws.

I. What a Difference a Decade Makes

If the supply-side revolution caused the tax law changes of the 1980's, the tax law changes provided the data to better evaluate the grounds for the supply-side revolution. The Economic Recovery Tax Act of 1981 (hereafter ERTA) immediately dropped the top marginal tax rate from 70% to 50%, and over three years lowered all other rates by twenty-three percent. It also, by expanding the investment tax credit and accelerating tax depreciation schedules, sharply lowered the effective tax rate on new investment. Universal eligibility for Individual Retirement Accounts (IRAs) was introduced. The Tax Reform Act of 1986 (hereafter TRA) further lowered the top marginal tax rate from 50% to 28%, and lowered overall individual tax rates by seven percent. Eligibility for IRAs was restricted. TRA also lowered the corporate tax rate from 46% to 34% but, by eliminating the investment tax credit and stretching out tax depreciation schedules, probably on average increased the effective tax rate on new investment. These significant tax changes allow us to observe how behavior changes as the tax system itself

changes. After all, as an example, between 1951 and 1986 the statutory corporation income tax rate that applies to most income had not varied by more than six percentage points.

In what follows I focus on two aspects of behavior - savings and capital gains realizations - for which the response to taxation has been controversial and central to the policy debates of the last decade. Because of a space constraint, these are necessarily only impressionistic pictures of the most influential papers of a decade ago, and of more recent research that has challenged these results.

The first shot in the supply-side revolution concerning saving was fired by Boskin (1978) who, estimating an aggregate consumption function, in his base case found an interest elasticity of saving of 0.4. The prevailing wisdom up to this point had placed this value at or close to zero. Summers' (1982) direct estimation of utility function parameters suggested that the intertemporal elasticity of substitution was quite high, in many specifications greater than one, leading him to posit an interest elasticity of savings greater than unity. Such high elasticities implied that the welfare cost of inefficiently high taxes on capital income could be extremely large, a point emphasized by Boskin and others.

The 1980's were not kind to the notion that savings responded quickly and in large magnitude to changes in the after-tax rate of interest. Reexamination of the data through 1983 by Hall (1988) contradicted Summers' finding, finding that "the evidence points in the direction of a low value of the intertemporal elasticity; [maybe] zero and ... probably not above .2." (p.350) Nor has the experience since 1983 altered this result. Although Summers (1984) had noted that in the early 1980's savings rates had not increased sharply in response to the surge in real interest rates, he concluded that the sample period was too short to permit conclusive judgments, especially in view of the large accrued gains to households holding stock, which would increase consumption, and the severe recession of 1982-3. However, with data from the entire decade at their disposal,

Skinner and Feenberg (1990) concluded that the "historical record seems quite clear in indicating little effect on saving of the after-tax real interest rate." (p. 72)

It is more difficult to characterize trends in the profession's view of the tax elasticity of capital gains realizations, because it was highly controversial a decade ago and remains so today. It was in the late 1970's, though, that econometric analysis of cross-sectional data began in earnest.

Based on an analysis of cross-sectional data from 1973, Feldstein, Slemrod and Yitzhaki (1980) concluded that reductions in the tax rate applied to capital gains realizations would cause a substantial increase in sales of capital assets, substantial enough in their simulations so to increase tax revenue. Although this result was controversial even at the time, it provided support for the claim that cuts in capital gains taxes would have little or no revenue cost, and therefore could represent a potential Pareto improvement.

Fortunately (for the progress of our knowledge, not for policy), since 1978 the taxation of capital gains has been changed several times, providing much new evidence on the tax responsiveness of realizations. The evidence confirms that the short-term timing of realizations is in fact highly responsive to taxation. For example, once it became clear in 1986 that the tax reform bill would increase the effective tax rate on long-term gains as of January 1, 1987, realizations skyrocketed. Aggregate net long-term gains, which had been $136 billion in 1984 and $166 billion in 1985, climbed to $325 billion in 1986, only to fall back to pre-1986 levels in 1987 and thereafter.

How responsive steady-state realizations are to a tax rate change perceived to be permanent is quite another question. Auerbach (1988) concluded, on the basis of aggregate time-series data, that "the evidence for a permanent tax effect is weak indeed." (p. 610). Auten and Clotfelter (1982), using a longitudinal tax return data set spanning 1969 to 1973, concluded that the response to a permanent change is less than the

response to a temporary change, and that the evidence did not strongly support an inverse relationship between revenues and tax rates.

Other examples of the shift in thinking over the past decade are discussed in the collection of papers in Slemrod (1990b). Compare the tone of Feldstein's (1982) Fisher-Schultz lecture, where he stated that "adverse changes in the tax variables since 1965 have depressed investment by more than ... 40 percent ... " (p. 836), to the conclusions of Auerbach and Hassett (1990a) that TRA "played a relatively unimportant role in explaining the level and especially the pattern of investment..." and that "tax policy may have been given too much prominence .... in past discussions of investment behavior."[1] (p.36). Or compare the conclusion of Courant and Gramlich (1990) that, as of 1988, TRA "had not seemed to have had much impact on state or local budgets..." (p. 271), with the predictions of Holtz-Eakin and Rosen (1988) that state and local spending would decline at least 8% and that state sales tax revenues would fall by 14%.

I don't mean to suggest that, for all aspects of behavior, all economists have lowered toward near zero their best guess of the tax elasticity. There are some sectors, notably real estate, where tax changes have apparently had a large effect. But I do believe that this is an appropriate generalization about how views have changed in the past decade.

What's behind the downward revaluation of the responsiveness to taxation of real variables? Although part of it is probably due to the fads and fashions of academia, I do believe that today's consensus is closer to the truth than that of a decade ago. Some caveats to the new "consensus" are, however, worth keeping in mind. Aaron (1990) has cautioned that estimates of behavioral response based on the time-series response to tax changes may be biased toward zero if people -- or, even more likely, governments -- are slow to react to a new environment, if people believe tax changes that apply to the long-term consequences of current decisions are temporary, or if the provisions offset so as to blunt the impact on incentives.

That the myriad provisions of the Tax Reform Act of 1986 significantly offset each other would be no accident given the political constraints put on the reform-- that it be revenue and distributionally neutral. Revenue neutrality implied that there could be no shift in the timing of total taxes, and distributional neutrality meant that there could be no large decrease in the tax disincentives to earn income. To maintain distributional neutrality the sharp reduction in the top marginal tax rate was accompanied by an increase in the effective tax rate on capital gains, the elimination of the deductibility of sales tax and personal interest payments, and by the (planned, but not realized) increase in the corporation income tax burden. Thus the fall in the statutory marginal tax rate does not necessarily imply that there was an increase in the real after-tax wage rate expressed in terms of all goods (particularly future goods) or an increase in the real after-tax return to saving; this mitigates any positive response of labor supply.

Revenue neutrality (or distributional neutrality) did not constrain ERTA, and the large deficits that accompanied it did shift the timing of tax burdens. For this reason, analysis of decisions which have an intertemporal aspect must consider how the deficit affected expectations of the path of future tax rates.

These caveats notwithstanding, I believe that a careful reading of the evidence from the 1980's suggests that there is a hierarchy of behavioral responses to taxation. At the top of the hierarchy -- the most clearly responsive to tax incentives -- is the timing of economic transactions. The pattern of capital gains realizations before and after TRA is the best example, but there are many others, including foreign direct investment into the U.S., which was $16.3 billion in the fourth quarter of 1986, more than double the rate of adjacent quarters, as investors raced to beat the expiration of tax rules favoring mergers and acquisitions, and donations of appreciated assets which showed a large increase in 1986, followed by declines in 1987 and 1988, in response to the inclusion of otherwise untaxed appreciation in the alternative minimum tax base beginning in 1987. In these

and other instances, the opportunity to realize temporarily available tax savings obviously dominated the cost of accelerating transactions.

In the second tier of the hierarchy are financial and accounting responses. There is substantial evidence of the reshuffling of individuals' portfolios and repackaging of firms' financial claims in response to ERTA and TRA. For example, after TRA individuals were quick to change the form of much of their debt away from newly nondeductible personal loans into still-deductible mortgage debt. (Skinner and Feenberg, 1990)

On the bottom of the hierarchy, where the least response is evident, are the real decisions of individuals and firms. The recent research on saving and investment has already been mentioned. One counterexample may be the post-TRA decline in multifamily housing starts.

II. Lessons for Research and Policy

One lesson is to look beyond cross-sectional data, which is plagued with two distinct problems. The first is that the effect of marginal tax rates on behavior must be inferred not from different people facing different tax systems, but from different people being located on differently-sloped segments of their budget sets. Thus the identification of tax effects depends critically on the graduated schedule, under which the marginal tax rate is a simple, though nonlinear, function of income. Reduced-form estimation must rely on this nonlinearity to identify the price and income effects, although there have been interesting efforts to achieve identification using differences in state tax rates. Structural estimation methods such as in Hausman (1981) are designed to overcome this difficulty, but only at the cost of strong (and potentially arbitrary) assumptions about the functional form of individual utility functions. Second, empirical analysis of cross-sectional (and any other) data is subject to bias because unobservable explanatory variables may be correlated with included variables.

Both these problems are ameliorated by the analysis of longitudinal data that spans periods of tax reform. Observing varying tax rates for the same level of real income

helps identify the price and income effects, and observing changes in the behavior of the same individuals over time can, under certain assumptions, eliminate the bias caused by time-invariant but individual-specific unobservable characteristics. The recent availability of the panel of tax return data for 1979 through 1988 in the Continuous Work History File has facilitated the investigation of these issues.

A more subtle problem with accurately measuring the real response to taxation, and one that applies to longitudinal as well as cross-sectional or aggregate data, is the difficulty of disentangling the real response from the financial, accounting and timing responses which accompany it. In most of the simple theoretical models of taxation that underlie empirical investigation only a real response is possible. In models of labor supply the choice facing the consumer is between (possibly dated) leisure and consumption; increased noncompliance is thus not allowed as a possible response to higher marginal tax rates. In simple models of saving, not allowed as a response to higher taxes is investing in a package of fully deductible debt with preferentially-taxed capital assets, (i.e., a tax shelter).

In these cases and others the statutory tax rate is not a reliable measure of how the tax system affects the opportunities of individuals and firms. For example, in the early 1980's the real after-tax return to saving of high-income individuals was not well measured by $i(1-t)-\pi$, where i is the nominal interest rate, t is the marginal tax rate, and π is the expected rate of inflation. Nor was it well-measured by $e-\pi$, where e is the interest rate on tax-exempt securities. For many affluent and savvy individuals the return to saving was $(r-di(1-t)-\pi)/(1-d)$, where r is the (assumed to be untaxed) nominal rate of return on, say, a real estate investment and d is the maximum allowable debt-capital ratio. Because the tax rate enters this expression only as the rate against which interest payments are deductible, an increase in t increases rather than decreases the after-tax rate of return to saving.

For problems such as this the real decision must be modelled simultaneously with the financial or accounting choices that mediate the terms of the real decision. Thus, labor supply ought to be modelled jointly with labor income reporting, saving jointly with portfolio choice and capital income reporting, investment jointly with corporate financial structure, multinational enterprise's investment location jointly with income shifting, and so forth. This change in focus is required because, due to administrative necessity, the income tax is inavoidably a set of rules that impose taxes on certain transactions, rather than on the flow of income itself, an important distinction that has been emphasized by Bradford (1986).

The hierarchy of responses to tax systems suggests that we pay closer attention to - and strive to eliminate - aspects of the tax code which provide rewards to taxpayers for changing the timing of transactions or for repackaging their financial claims. Such opportunities are likely to be quickly exploited by taxpayers, costing the Treasury revenues and encouraging socially unproductive behavior. In this category I put preferential treatment of capital gains (and even more so temporarily low rates on capital gains) as well as IRAs. Attention ought to be refocused on reducing the complexity of the tax system, an objective of tax reform that was honored more by its press than by its reality.

Downward revised measures of the real behavioral response to taxation have important implications for the appropriate distribution of the tax burden. As posed by the modern theory of optimal progressivity, the solution to this problem trades off the social benefits of a more equal distribution of welfare with the costs of effecting redistribution through tax progressivity. In this framework, a lower behavioral response to taxation -- because it reduces the excess burden for any given progressivity -- implies a more progressive tax system, ceteris paribus.

The other-than-real responses to taxation are important for policy in their own right. Such responses to higher taxes reduce the revenue yield and therefore increase the excess

burden per dollar raised and the cost of raising revenue either for redistribution or expenditure. The difference between real responses on the one hand and financial, accounting and reporting responses on the other is that the size of the latter often depends on tax system features such as how rigorously the law is enforced. To borrow the terminology of Okun (1975), this suggests that policymakers must decide not only how much water to carry from the rich to the poor with a leaky bucket, but also how much effort to spend on repairing the leak.

The supply-side revolution focused on the power of the tax system to change relative prices, and on the benefits of increasing the reward to work, take risks, save and invest. But the tax system does much more than change the relative prices of the real variables that are of ultimate concern to individuals and firms. It also provides incentives to taxpayers to misreport income, restructure their financial claims, carefully time transactions, change the legal form of business organization, and undertake a whole host of other responses. I have argued elsewhere (Slemrod, 1990a) that because of this fact the normative theory of optimal taxation ought to be replaced with what I call a theory of optimal tax systems, which emphasizes the transaction-based nature of the tax system and the administration and enforcement of the tax laws. A similar change in perspective is equally important for the advancement of the descriptive analysis of how taxation affects the economy. Because most taxes apply to transactions, their impact on real variables can be adequately understood only by simultaneously considering their impact on the transaction behavior whose terms are directly affected by the tax system. This research strategy should shed light on an important research question for the 1990's -- to what extent the low tax elasticities for real variables observed in the 1980's are due to low elasticities of substitution, and to what extent they are due to the fact that tax policy changes opportunity sets in complex and sometimes unexpected ways.

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Footnotes

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I am grateful for helpful comments on an earlier draft from Henry Aaron, Paul Courant, Roger Gordon and Jeffrey MacKie-Mason.

[1]Although see Auerbach and Hassett (1990b), in which a disaggregated time-series analysis suggests that TRA may have exerted a considerable impact on equipment investment.