

# TAX INCENTIVES AS VIEWED BY ECONOMISTS AND LAWYERS

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## I. Introduction

**T**HE title of this paper to the contrary, it is not a discussion of tax incentives generally, nor is it a lawyers vs. economists polemic. In keeping with the topical theme of this session, the scope is limited to "business tax incentives." More particularly, it is limited to that subset of business tax incentives the policy objectives of which are to alter either the product composition of national output (GNP) or the physical/demographic composition of inputs by modifying the terms on which business decisionmakers make their choices. The subset thus defined includes, for example, such output-modifying incentives as for encouraging the performance of more R&E investment, the production of more "orphan drugs," and the preservation or rehabilitation of more certified historic structures; and it also includes such input-modifying incentives as for employment of more certified disadvantaged persons, the increased production of energy resources from "renewable" or ubiquitous materials, and the substitution of ethanol for gasoline in motor fuels. Thus the scope of this paper does not extend to such tax policy issues as the general substitution of "expensing" for tax depreciation allowances, or the differential taxation of capital gains.

Finally, the separate mention of tax economists and lawyers is not intended to suggest that members of these two professional groupings of tax analysts have disparate views. On the contrary. Although a randomly-selected economist and lawyer might use different vocabularies to express their views on business tax incentives, with the economist favoring terms such as "inefficient resource allocation" or "unequal effective tax rates," and the lawyer favoring "tax sheltering" or "tax avoidance," both would agree ter-

minologically that tax incentives have the effect of "narrowing the tax base."

Rather, the paper is explicitly addressed to these two professional groups because, however unwillingly at times, as government officials and staff they share responsibility for the design of tax incentives and for drafting them into the Internal Revenue Code. Written from the point of view of a former participant in the process, the burden of this paper is that tax economists' and lawyers' views on tax incentives are flawed in ways that have contributed simultaneously to their assent to unnecessary and counterproductive complication of the tax laws in the name of "tax reform," and to their complicity in growth of the fiscal burden in the form of inefficient, often frivolous, tax incentives that are either unaccounted for in the budgetary process, or frequently understated when they are.

These defects flow from tax specialists' excessive preoccupation with the net amounts deposited as tax payments by tax return filers. This fixation is pardonable when one is feverishly determining what must be paid to the IRS after all his decisions affecting the tax return bottom line have been taken. But it is inappropriate for formulators and evaluators of the tax laws to disregard the terms of those laws that influenced taxpayer decisions made the past year. The following paper is written in the spirit of constructive criticism intended to encourage a more productive dialogue between lawyers and economists so that, in turn, their dialogue with policymakers and concerned citizens may be more fruitful. The perspective, or framework, of the discussion is necessarily economic, not least because of my own training and experience, but also because business incentives are designed to purposefully alter business input-output choices and, therefore, are more usefully approached from the perspective of enterprise economics.

The next two sections of the paper con-

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cern the significance of distinguishing between traditional tax policy, and *incentive* policy, of which tax incentives are a major subspecies, and why both forms of incentive policies are most usefully formulated and evaluated as expenditures. The fourth section is a kind of workbook on the avoidance of analytic pitfalls in the path of unwary tax specialists who accept "taxes paid" as a measure of "tax burden" because that is the "bottom line" for the taxpayer and the IRS.

## II. On the Importance of Distinguishing Between Incentive and Tax Policies

As evidence this is not an economists vs. lawyers paper, I wish to acknowledge that the importance of distinguishing tax incentive from traditional tax policy issues was first impressed on me by Stanley Surrey, who was Assistant Secretary for Tax Policy when I arrived at Treasury. In 1967, a few months after the President's Commission on Budget Concepts had issued its Report recommending changes in the format and construction of the Federal Budget, Surrey [4] was inspired to suggest that the information conveyed by the budget would be vastly improved if what he termed "tax expenditures" were displayed along with appropriated outlays in the annual budget. The Commission had stated that the two principal purposes of a budget are "to provide the integrated framework for information and analyses from which the best possible choices can be made in allocating the public's money among competing claims," and to consistently portray the size of the deficit and the way it is to be financed [2, p. 12]. In terms of the format of the unified budget the Commission recommended, and which was subsequently adopted, the framework implied a sources and uses of funds display, the same framework every rational decisionmaking entity, whether a household, business, or government, almost instinctively adopts for summarizing its most recently completed transactions and for projecting its likely possibilities in the upcoming period. Depending on the nature of the de-

cisionmaking unit, the format includes a classification system, functionally grouping transactions that implement related decisions. In the case of a government, the functions of which are to intervene in the decisionmaking of individuals to enhance the sum total of attainable human welfare, the sources of funds simply summarize taxes deposited, variously classified, and net borrowing; and the uses of funds summarize expenditure decisions programmatically classified. Correspondingly, decisions as to government sources of funds are the province of tax writing committees in Congress and, traditionally, the Treasury within the Executive Branch, and decisions as to expenditures are the province of other committees in Congress, and the even more numerous executive agencies and departments.

Although both sets of decisions implied by the budget format aim to serve a singular objective of the decisionmaking unit and are therefore interrelated, separating the two sets is both logical and operationally necessary. When a head of household decides which income yielding opportunity to select, the objective is to maximize the command over resources this will afford the household, taking as given that the income will be disposed of effectively; and when income disposition decisions are made, the amount to be disposed is taken as a constraint. So it is with governments. It was Surrey's insight that the tax laws had been used, as they continue to be, as both sources and uses of funds, thereby distorting the budget's portrayal of government's allocation of "the public's money among competing uses." He contended that the budgetary process would be improved in two ways if the two functions performed by the parties responsible for tax legislation were separately and systematically accounted for. First, the budget totals would more honestly reflect the size of government. For example, if grants to states to help them pay for sewage control facilities are displayed in the budget as expenditures to be financed by general fund taxes, as they should be, so should the cost of the companion Federal interest subsidy with respect to the same states' debt financing of their share of the

sewage control investment cost, even though the state borrowing subsidy was provided by exempting from tax the interest paid by the states to their lenders. Simply netting out the lending subsidy from tax revenues, if the subsidy is correctly measured, leaves the deficit unchanged but understates the Federal support for sewage control, and, thus, the fiscal burden, whether that burden is measured by expenditures or tax revenues.<sup>1</sup>

Second, and far more important for the present subject, Surrey observed that the criteria for formulating and evaluating expenditure programs, which he called "expenditure control," are different from the criteria for formulating and evaluating tax programs to pay for the fiscal burden, which he called "tax reform."<sup>2</sup> "Expenditure control" entails application of benefit/cost analysis to feasible options for achieving a stated program objective, given all other existing laws, including the tax system, to guide the choice of expenditure programs. In contrast, tax program, or classical "tax policy," choice takes as given the expenditure burden and employs such criteria as minimization of relative price distortions and concordance of the resultant burden distribution with accepted "fairness" norms.

Ever confident in the rationality and perfectibility of man, as all National Tax Association members must be, Surrey optimistically believed that formal addition of "tax expenditures" to the unified budget would improve government decision-making and thus facilitate achievement of both "expenditure control" and "tax reform." Although a "tax expenditure budget" was officially appended to the annual Federal Budget submission beginning in FY1975, largely on Surrey's initiative, I am unaware that either "expenditure control" or "tax reform" processes at the Federal level have been improved thereby.

But this paper is not about the reconstruction of tax expenditure budgets with a view to more fully realizing Stanley Surrey's ambitions. Rather, it is about operationally adapting his insights to the design, and particularly the costing, of tax incentives to improve the quality of our

input to the budgetary process. So long as tax writers retain the license to recommend both what governments will "do," e.g., by exercising an authority to spend and, thus, to determine the composition of national output, as well as to recommend means of financing all government expenditures, their own plus those approved by duly designated spending authorities, it behooves us as official tax writers, as legal and economic staff to tax writers, and as critics and kibitzers of the tax legislative process to constantly bear in mind this dual function of the tax laws as we perform our tasks.

### III. Business Incentives as Government Expenditures

A discussion of business tax incentives is particularly useful for clarifying the distinction between incentive and tax policy and for reconciling some of the differences between economists' and lawyers' approaches to tax analysis that impede their mutual understanding of both incentive and "tax reform" issues. Economists and lawyers alike are interested in "efficient resource allocation" and in "fairness" of after-tax income distribution. But "efficiency" is concerned with prices and quantities of output, the objective of economic organization, while "income" is the term for generalized claims to output, albeit claims that are generated in the very process of producing that output. Although the value of output necessarily must be equal to the claims to it, the kinds of decisions required to assemble inputs, schedule the production of output, and manage its sale, are different from the kinds of decisions suppliers of inputs, such as labor and willingness to hold debt and equity claims to capital, must make.

Economists are inured to this distinction, even when they carelessly substitute the word "income" for "product" in discussions of tax matters impinging on business decisions; the context of the discussion tells them whether they are discussing determination of widget supply and price, or the determinants of wages and the interest rate that enter the determination of widget supply price as costs.

But lawyers, even those who have weathered economics courses, are less likely to be sensitive to the distinction because of their years of exposure to indiscriminate use of the word "income" in the tax laws where that word is used to refer to various categories of receipts ranging from value of output (business receipts) to the proceeds of financial asset sales (insurance premiums) as well as to actual income shares, both before- and after-tax. Since businesses are the points at which decisions result in output and, incidentally, in the entering into of contracts for allocation of shares in that output to cooperating input suppliers, when lawyers and economists together examine incentives impinging on business decisions they should find it easier to adopt a common vocabulary to describe and analyze the nature of incentives and the way they work, as in Section IV. But first a few words about incentives as exercises in fiscal intervention are in order.

The function of government is to intervene in the affairs of private citizens, presumptively to maximize the sum total of human welfare. The exercise of fiscal authority to tax and to spend is but one way government intervenes. Governments "intervene" in the most general sense by defining rights in property and how these rights may be contractually exchanged and often by promulgating special rules, or standards, for the conduct of political economic activities. This constitutional and legal-institutional framework obviously constrains economic decisions, and thus, helps shape the composition of national output, given the resources available for its production and the state of technology. A common measure of this outcome is the total value of "final" goods and services of which it is comprised, i.e., the summation of quantities of goods and services times the prices at which they exchange. The adjective "final" denotes that these are the goods and services that may be currently used, or consumed, by members of society in their pursuit of happiness, or well-being, or added to the stock of capital to enhance their future well-being.

"Net national product" (NNP) is a common measure of the market value of the

economic outcome, estimates of which are regularly published by the Department of Commerce. NNP is the total market value of goods and services produced during a time period, gross national product, less the value of goods and services which are required to replace the capital consumed in producing the output. When economists use the term "resource allocational efficiency," they are centering attention on the question of whether the composition of NNP affords society a maximum well-being. In market economies there is no absolute unit of value by which to evaluate the size of NNP. Instead, economists define the conditions under which the market value of NNP will represent a maximal well-being.<sup>3</sup> One condition is that, at the margin, the prices of outputs be equal to the cost of resources to produce them, which simply means that the aggregate of prices times quantities produced/sold cannot be increased by shifting resources from one output to another. A second condition is that buyers and sellers, within the legal-institutional constraints in force, are free to enter and exit markets, i.e., markets must be competitive. This condition, in combination with the first, ensures that the prices of outputs will faithfully reflect both buyers' consumption preferences and the terms on which they are willing to supply inputs, thus expressing their preferences for work versus leisure and for holding debt and equity claims versus current consumption.

A final condition that must be satisfied if NNP is to yield a maximal well-being is that the prices for output should incorporate full valuation of benefits (or detriments) derived from use of the output as well as full valuation of the costs incurred in its production.<sup>4</sup> Expressed another way, market prices of output should internalize as fully as possible all social costs and benefits, not simply those directly accountable by private transactors. For example, it is well-known that forested land yields such environmental benefits as wildlife habitat, pleasurable vistas, and flood control, the values of which do not enter the calculus of either timber growers or buyers. To the extent the values of

these benefits are unaccounted for, or the prices of timber, which reflect only the value of timber products to buyers and the resource costs incurred by timber growers, are too low to induce growers to plant and maintain the larger acreages which would better serve society. Similarly, the cost of producing many of the products summed in NNP normally would include only the costs of inputs purchased in markets and not the costs of emissions that pollute the air and water breathed and drunk by others than the purchasers of the product. Again the prices of such products are too low, but this time, because they omit significant costs, they lead to more production and consumption than is socially desirable.

Benefits and costs not directly entering the calculus of buyers and sellers are called "externalities." Internalization of these costs and benefits to assure the NNP product mix is optimal is a justification for government intervention. The intervention may be accomplished by exercising either government's regulatory or fiscal powers. In the case of forestland externalities, the government either might require landowners in specified locations to plant trees, or it might offer them financial inducements to do so in those locations. In the case of environmental pollution, the government may also mandate allowable emission levels, or it might use a variety of financial incentives, such as charges for emissions, the proceeds of which would be available to finance government expenditures, or financial incentives, government payments, to induce the use of more environmentally benign processes and products. Whether "regulation," or fiscal intervention, or a combination of the two is the best interventionist policy for maximizing the welfare content of NNP is obviously an important question beyond the scope of this paper; an accessible survey of the comparative advantages of the two forms of intervention for internalizing externalities may be found in Charles Schultze [3]. Here we assume a fiscal intervention is the policy mechanism chosen, in particular, one in which the incentive is to induce businesses to incur the higher cost of, say, planting trees

in otherwise unsuitable locations, or using a more costly production process.

Business incentives are akin to government expenditures to assure the availability of what are called public goods and services, and this is the rationale for including incentives among expenditures in government budgets. Public goods are those which private markets cannot supply either because the output, such as national defense, cannot be price-rationed among its consumers, thus denying producers remuneration for the costs they would incur, or because it is impractical to do so, as in the case of public parks. Governments intervene in private decisionmaking to make public goods available when it is judged that the value of the service provided is at least equal to its opportunity cost of production. The cost of producing the public good enters the government decisionmaking calculus because that is the measure of the value of private goods and services that must be forgone by taxpayers in the form of a tax assessment to pay for the public goods and services. If, for example, the expenditure of an additional \$1 billion yields an incremental defense capability worth at least \$1 billion, the welfare content of NNP is enhanced thereby and the expenditure is justified.

A business incentive to internalize the value of external benefits is similarly justified. Is the value of the environmental benefits yielded by additional tree plantings at least worth the cost of payments to induce landowners to plant them where they otherwise would not? Or is the value of improved vehicle emissions resulting from the substitution of more costly ethanol for gasoline worth the cost of compensating fuel blenders for making the substitution? If the answers are affirmative, the government incentive expenditure would increase the welfare content of national output and thus could be justified. Doubtlessly no one supposes there is an econometric model somewhere in government or academe that can reliably value the outcome of public goods and incentive expenditures. At best, some indicator of quantitative outcome, such as combat effectiveness, number of passers-

by pleased by wooded vistas, or the acre-foot of water retained in the soil by additional forest lands, and the tonnage of undesirable pollutants eliminated from the atmosphere by use of alcohol fuels, may be estimated. But one can hope that government program analysts exist who can estimate, with tolerable error, the cost of a weapon system, or a program to encourage private investment in woodlands, or to substitute ethanol for gasoline, if not in advance of the adoption of these programs, at least after the program has been adopted and the government checks are paid out. With respect to government expenditure programs, there is much truth in the popular put-down, "An economist is someone who knows the cost of everything but the value of nothing." Notwithstanding the inevitable disputes over valuation of benefits, choices among expenditure options cannot be made absent a knowledge of the opportunity costs of making them.

#### IV. Business Incentive Analysis

Since the purpose of this paper is to improve the quality of lawyers' and economists' inputs to the formulation and evaluation of business tax incentives by distinguishing them from tax policy per se, I could think of no better device for the purpose than the presentation of an example. An example helps make the foregoing abstractions relevant to the business of tax analysis and is a useful device for overcoming many of the semantic confusions of interprofessional, and even intraprofessional discussions of tax matters. The locus of the example is a business firm producing an output the use of which government will want to encourage by a fiscal measure. We will identify the forms, or "incentive designs," that might be used to achieve the government's policy objective cast, first, as a traditional "expenditure" program and then, as one or another equivalent tax incentive.

##### *The Base Case*

Suppose there is an elixir which is manufactured in a simple process from a

combination of natural and chemical ingredients. The ingredients have to be carefully selected and combined, and the process involves mixing them thoroughly, placing them in a container, and holding the container under controlled conditions with moderate surveillance while chemical-biological reactions occur. At the end of one year an elixir can be drawn off which has remarkable therapeutic and life-extending properties; at the end of the second year, a still more effective elixir can be drawn off, but if the mixture is held longer, the product becomes worthless; and in either case, the container is worthless. Thus there are two elixirs marketed, the "regular" which sells for \$20.85 per 16 ounce bottle, and the "super" for \$27.59, both before any government incentive program is introduced. First we present the relevant facts that determine these two market prices that serve as the base case.

For technological reasons, the optimum scale for producing the elixir is an activity producing 10,000 bottles per year and requiring the inputs, the costs of which are shown in rows (a) through (d) of Table 1, phased over the time it takes to produce regular or super elixir. For convenience, the underlying accounting assumption is that all accounts are cleared at the end of the year, so no working capital is required. It should be noted that the technology and these costs are independent of the way the elixir business is organized. The costs are determined by conditions in the various ingredients, space rental, labor, and capital markets. With respect to the opportunity cost of capital, it is assumed to be 15 percent and represents not only capital market conditions, but also an assessment of the risks of engaging in the elixir business, i.e., the variabilities of input prices and elixir market conditions that confront producers of the product. Since a \$150,000 investment is required to start the production process going, the first year's costs include \$22,500 to parties who have financed the investment and thus hold a claim to the container and elixir ingredients purchased.

Given the technology and resource costs of producing it, it is apparent that the

TABLE 1

## ELIXIR MANUFACTURING COSTS; PRICE DETERMINATION

Item	End of period values		
	#0	#1	#2
Inputs to produce 10,000 bottles of elixir:			
Ingredients and container....(a)	\$150,000	\$0	\$0
Storage facility rental.....(b)	0	6,000	6,000
Labor services.....(c)	0	30,000	30,000
Opportunity cost of capital..(d)	0	22,500	31,410
Total input expenditures...(e)	\$150,000	\$58,500	\$67,410
Beginning of period value of business asset.....(f)	\$0	\$150,000	\$208,500
Plus: Value added allocable to:			
Business suppliers = [(a)+(b)]	\$150,000	\$6,000	\$6,000
Elixir business employee = (c)	0	30,000	30,000
Elixir "capital income" share = (d).....	0	22,500	31,410
Total value added.....(g)	\$150,000	\$58,500	\$67,410
End of period value of asset, before sale as elixir = [(f)+(g)]..	\$150,000	\$208,500	\$275,910
Claims to asset, before sale as super elixir: Total.....	\$150,000	\$208,500	\$275,910
Suppliers, employee.....	0	0	36,000
Creditors.....	75,000	102,000	114,240
Equity claim.....	75,000	106,500	125,670

supply price per bottle of ordinary elixir must be \$20.85 because that is the minimum to cover the \$208,500 opportunity cost of producing 10,000 bottles: the landlord and employee would receive their \$36,000 contractual shares; the investors would have recovered their \$150,000 investment plus their \$22,500 opportunity cost of funds. If, at that price, 10 million bottles are sold, 1,000 regular elixir activities such as the one we have described would supply the market; if only 1 million bottles are sold, the market would be supplied by 100 activities. Whatever the size of the elixir market, if entry into and exit from the market is unrestricted, the price of ordinary elixir must be \$20.85.

In order to produce super elixir, the regular must be held another year, incurring the additional costs shown in the period #2 column of Table 1. Another year's rent and employee wage must be paid, and the firm's capital suppliers would

have had to invest more at the end of period #1 to, in effect, "buy" the \$208,500 asset required to produce the super elixir, worth \$58,500 more than their initial investment. Of course, the \$58,500 includes their own \$22,500 contribution to the value of the asset, their "capital income" share, and this affords an opportunity to note a true tax policy issue.

The true tax policy issue is whether to account for the \$22,500 capital income share as it accrues. Just as the landlord's and employee's \$38,000 enter those parties' calculation of their incomes subject to tax, so should the \$22,500 enter the investors'. Whether the output is sold as regular elixir or held for further production, \$58,500 of value product, before income tax, as all output is valued, was produced and is thus shared by the cooperating agents; and, since the government is a claimant to all these parties' income shares in the \$58,500 value added

the first period, they all should pay tax, regardless of the disposition of the regular elixir, whether as final consumption or as gross investment to produce super elixir. This is called "economic income accounting," and if the income tax laws required it, assuming a one-third income tax rate for convenience, the claimants to the \$22,500 capital income would have to pay \$7,500 in tax, leaving them the same \$15,000 after-tax incomes, or a 10 percent after-tax rate of return as if the elixir had been sold to final consumers. Having paid the \$7,500 in tax, that plus the \$15,000 of their after-tax incomes is now reinvested in the regular elixir held for sale a year hence.

But of course, the income tax laws do not quite require this; instead, the reporting of some or all of the \$22,500 capital income, and hence the \$7,500 tax, may be deferred until the appreciated asset is sold as super elixir, that is, until the period #1 income is realized.<sup>5</sup> Obviously, if, say, the entire \$7,500 tax share of period #1 is deferred, the cost of funds during the second period would be reduced by \$535, 15 percent of the \$7,500 deferred tax financing at zero interest, and this would have an effect on the cost, and hence, the "normal" supply price of super elixir. But such a distortion is not a tax incentive in the sense used here. It is a generalized distortion of costs/prices in private markets due to the divergence of a generally applicable tax accounting rule from economic accounting that mirrors rational decisionmaking, not an incentive aimed toward encouraging super elixir, or any other, production. The perfection of income tax accounting rules to minimize their generalized distortion of economic decisionmaking is clearly within Surrey's tax policy province, not incentive policy.

To avoid the expository complication of accounting for the distortionary effect of present law tax accounting for multiperiod production in the base case, we assume the tax laws follow economic accounting rules. With this norm in effect, the supply price of super elixir is \$27.59; maturing the elixir a second year has cost an additional \$67,410, or \$6.74. If super elixir is sold, \$27.59 is also its value.

If we were concerned only with cash incentives to increase production, the information thus far assembled would be sufficient. For example, if the government politically decides it is in the public interest to encourage the production and sale of more regular elixir on the ground that the benefits of elixir consumption, in the form of healthier, more productive workers, is not fully internalized by the masses it could appropriate enough money to pay producers a bounty for each bottle sold. Suppose it is decided that the benefit of increased regular elixir consumption resulting from a \$1.50 per bottle, or 7.2 percent reduction in price, would justify a government intervention. To achieve its objective most directly, the government could pay elixir producers \$1.50 per bottle sold, having been assured by respected economists that competition among producers ensures the prices would fall from \$20.85 to \$19.35.<sup>6</sup> In effect, the government would be buying \$1.50 of regular elixir and distributing it free of charge to every purchaser willing to pay \$19.35; so long as producers receive \$20.85 per bottle, they cover all their opportunity costs. Indeed, elixir producers would probably be gratified by the explicit endorsement of their product.

Alternatively, the government might intervene to reduce the cost of producing regular elixir by \$15,000, or \$1.50 per bottle. As Table 1 shows, capital costs, i.e., replacement plus cost of funds, is \$172,500, 83 percent of the total. An investment grant of 8.7 percent at the time of the initial investment would reduce the \$172,500 capital share of regular elixir product by \$15,000, and, accordingly, the supply price of that product.<sup>7</sup>

It should be noted that these incentives could all be formulated without regard to either the form of business organization, the tax laws, or any other legal-institutional determinants of input prices. Market prices already reflect these influences, good or bad; the objective of incentive policy is not to reform these influences but to modify particular outcomes that reflect those influences. But because we intend to provide these same incentives through the tax system, we need



additional information, namely, identification of the tax accounts through which the incentives will flow. This requires we also specify the financial organization of the elixir producer, a datum that is generally unnecessary in the analysis of cost/price determination.

Suppose the elixir manufacturing firm was organized by D, a pathologist who regularly earns \$150,000 a year. Being familiar with the elixir's properties, and, by virtue of his training and experience, D considered himself to be qualified to engage in its manufacture. Figuring he could continue with his professional work and still organize a small elixir business, supervise the buying and mixing of ingredients, both once-a-year events, rent the necessary space, and hire a part-time worker to do the manual work and watch over the maturation process, D organized a proprietorship. As organizer of the business, he arranged financing of the \$150,000 investment as follows: he arranged to borrow \$75,000 from friends and relatives, at 12 percent, with principal and interest payable when the elixir is marketed; and he was willing to put up the remaining \$75,000 as residual equity holder because, given the 15 percent rate of return on elixir manufacturing assets, after paying the creditors 12 percent on their share, he would be earning 18 percent on his own investment, a sufficient reward for assuming the modest management responsibility and the risk of unforeseen variances in the markets for inputs and the elixir. These are the necessary additional data we require, and are portrayed in the last three rows of Table 1, the presence of which serve mainly as a reminder in that table otherwise bereft of "ownership" information, that asset values are always equal to real persons' claims to them.

Table 2 presents a summary of this firm's operations in producing regular elixir, the top portion in the format of a "product/income" statement, the bottom a summary of the two sets of capital income tax accounts. The top portion relates "tax form" to national income, or social accounting, terminology for the entries; and because we are assuming tax

equals economic accounting, all product/income statement entries are market value, pre-tax magnitudes identical to those that would appear in the tax return filed by D. This statement merely reformats information already presented in Table 1 to show how the value of elixir, the production of which serves the objective of consumers' well-being, has been divided into shares by the contracts D has entered into. In particular, it shows how the \$22,500 capital income has been divided, by mutual agreement of D and his fellow financiers, into \$9,000 of interest income claimable by creditors and D's \$13,500 residual share. Indeed, D, as residual equity owner, is the only person who must report in his income tax return the value of output and all the claims to it, for that is the only mechanism for determining his share; his "deductions," even for interest paid, do not "benefit" him other than to prevent his being ascribed someone else's legal claim to the output *he* alone reports as "gross income."

### *Sales Incentives*

The upper portion of the table also compares the product/income entries with and without the \$1.50 per bottle incentive in effect. As already noted, and recalling that we are examining only a single elixir producer, the only difference between the two states of the market is that when there is an incentive, the (market) "sales" figure is less but compensated by a government payment; the capital income share is unchanged.

Turning to the tax accounts in the lower part of Table 2, and assuming a tax rate of one-third for convenience, column A shows that whether an incentive is in effect or not, the income tax share of capital income is \$7,500, the tax due and payable is also \$7,500, and there is \$15,000 of after-tax (disposable) capital income divided, as per agreement by D and his creditors.

The same financial incentive can be formulated as a tax incentive. The producer might be offered any one of the following equivalents: a "taxable" \$1.50 per bottle credit against tax otherwise due, like

TABLE 2  
 PRODUCT/INCOME ACCOUNTS WHEN ELIXIR IS SOLD AFTER ONE YEAR  
 (TAXABLE INCOME EQUALS ECONOMIC INCOME)

Item ["..." = tax terminology]	Amount	
	Without incentive	With
Quantity sold, bottles.....	10,000	10,000
Market price per bottle.....	\$20.85	\$19.35
Government sales incentive.....	0	\$1.50
"Sales"/Value product.....	\$208,500	\$193,500
Plus: Government incentive payment	0	15,000
Equals: "Gross income"/Value product at factor cost.....	\$208,500	\$208,500
"Less"/Allocable to:		
Capital recovery.....	\$150,000	
Purchases from other businesses	6,000	
Wages.....	30,000	
Creditors' share.....	9,000	195,000
Equals: "Taxable income"/Equity income share of product...	\$13,500	\$13,500

Tax accounts of capital income claimants:

	No incentive, or cash incentive (A)	"Taxable" tax credit (B)	"Nontaxable" cash or tax incentive/ Actual (C)	Tax return (D)
Elixir-source taxable income share: Total..	\$22,500	\$22,500	\$22,500	\$7,500
To creditors.....	9,000	9,000	9,000	9,000
To equity holder...	13,500	13,500	13,500	(1,500)
Tax share: Total.....	\$7,500	\$7,500	\$7,500	\$2,500
From creditors.....	3,000	3,000	3,000	3,000
From equity holder	4,500	4,500	4,500	(500)
Tax due and payable:	\$7,500	(\$7,500)	—	(\$7,500)
By creditor.....	3,000	3,000	—	3,000
By equity holder...	4,500	(10,500)	—	(10,500)*
After-tax, or dispos- able capital income:				
Total	\$15,000	\$15,000	\$15,000	\$15,000
Creditors'	6,000	6,000	6,000	6,000
Equity holder's	9,000	9,000	9,000	9,000

# At a tax rate of 1/3, a "nontaxable" \$1 credit is equivalent to a \$1.50 cash or "taxable" credit.

\* Comprised of the \$500 "refund" with respect to the \$1,500 MCL and the \$1 nontaxable credit per bottle for the 10,000 bottles sold.

the current credit for ethanol sold as a motor fuel; a "nontaxable" \$1.00 per bottle tax credit, like the present credit for production of alternative fuels; or a "special deduction" equal to 15.5 percent of regular elixir sales, similar to the "percentage depletion allowance" for minerals under certain circumstances.<sup>8</sup> The tax account effects of the first two tax incentives are shown in Table 2; the third is

but a variation of the second and will be discussed as such.

A "taxable" tax credit is formulated as follows: the taxpayer claiming the credit, D in this case, computes his allowable credit by multiplying the units of the base for the credit, 10,000 bottles of elixir, by the credit rate, \$1.50, and entering the product, \$15,000, as "other income" in calculating his "gross income." This ex-

actively mirrors the tax accounting for a cash incentive payment. He then proceeds to calculate his taxable income, \$13,500 and the \$4,500 tax thereon ("tax otherwise due," or "tax share") as in Table 2, from which he subtracts his allowable \$15,000 elixir tax credit, yielding a \$10,500 net "refund" due with respect to his elixir equity income. Since D earns \$150,000 as a pathologist, of which the income tax share is \$50,000, the mutual obligations of D and the government would be settled if D remitted a check of \$39,500 as net tax due and payable. Then he will be exactly in the same position he would have been were the \$15,000 government incentive payment made by check. Instead of receiving a \$15,000 check and remitting one of \$54,500 to discharge his total tax obligation, he receives no government check and sends the Treasury \$39,500, \$15,000 less. In either case, as may be seen in column B of Table 2, he nets no more disposable income than \$9,000 from producing incentivized elixir, as when there is no incentive or the incentive is paid in cash.

But the many who are preoccupied with the "bottom line" of tax returns ("tax due and payable" in Table 2) are generally horrified that D, an equity owner in a business with an economic capital income of \$22,500, should require a \$10,500 "refund," particularly when he thereby "reduces" his tax on "pathologist" income by \$10,000. Overlooked in this fixation on D's bottom line are:

a. The \$22,500 elixir economic income includes the government's \$15,000 obligation with respect to the production of 10,000 bottles which the tax writing committees have agreed will be settled through tax accounts. It is an administrative convenience if the party to whom the government is obligated should have a tax obligation sufficient to cover the government's obligation to him, because the government's settlement can be labeled "tax refund" and thus not require an appropriation. But, in the event the taxpayer's tax obligation is less than the government's, the government's obligation should be settled nevertheless, whether it

is labeled a "refund" or an "outlay" requiring an appropriation. Incentive payments to farmers, builders or plants demonstrating new technology, and so on are never restricted to the amount of tax owed by the agent with whom the government contracts.

b. That the income tax base is "income from all sources" and not sources classified by Standard Industrial Classification Code. Income is, of course, derived as shares of output, but "elixir-" and "pathologist-source" income shares are both generalized claims to any output and are thus fungible. Distinguishing one source of a unitary taxpayer's pre-tax income from another when any dollar of after-tax, disposable income is as spendable as any other serves no social purpose.

If D is viewed as paying an "effective tax rate" of only 24 percent because he deposits only \$39,500 in tax while reporting a \$163,000 economic (= taxable) income from all sources, the viewer is guilty of double-counting. A 24 percent tax rate implies D has an after-tax, disposable income of \$124,000; but, as a matter of fact, D's disposable income is \$109,000—\$100,000 from his practice as a pathologist, \$9,000 from his elixir equity interest; his effective tax rate is one-third, not 24 percent. It is simply bad algebra to double-count the \$15,000 as both a tax incentive and as a "tax reduction."

We turn now to the "nontaxable" form of a tax incentive to accomplish the \$1.50 elixir price reduction. When the tax rate is one-third, a "nontaxable" \$1.00 bounty per bottle sold does the same job as a "taxable" \$1.50. How this comes about is shown in columns C and D of Table 2. Column D sets out the capital income tax accounts as they would appear if a "nontaxable" \$1 credit per bottle is the tax incentive design; column D shows the "actual" values, including the nonreportable credit, all stated in before-tax magnitudes to make them comparable with the other figures used to compute capital income. Assume, for the moment, that the market price of elixir does fall to \$19.35; then D would report only \$193,500 as gross income, \$15,000 less than the cases shown

In columns A and B since the costs of producing the elixir are unchanged, reported taxable capital income is only \$7,500, also \$15,000 less than "actual." As a consequence, after the \$9,000 creditors' share has been deducted, D reports a negative \$1,500 taxable income, a "net operating loss" (NOL), which means his tax due and payable is a \$500 "refund." This "refund" plus the \$10,000 "nontaxable" credit for selling 10,000 bottles gives D a \$10,500 claim against the government, as with a \$1.50 "taxable" credit. He still earns a \$9,000 disposable income, which is why the assumption that a \$1 "nontaxable" credit does the same work as a \$1.50 taxable credit is valid. Obviously the two credits cost the government exactly the same \$1.50 per bottle of elixir sold.

A digression is in order here concerning the occurrences of a NOL when the business tax filer reports a positive economic capital income but a loss seemingly due to a deduction for interest paid, as in this case. The aforementioned many who are preoccupied with the bottom line find tax refunds thus occasioned particularly distasteful. As commented above, the cause of this refund is the incentive policy formulated as a "nontaxable" credit resulting in a sharp reduction in reportable capital income, not a tax "loophole" that increases D's disposable income. Nevertheless, a powerful battery of interest deduction limitations and restrictions on the consolidation of taxpayers' income from all sources have been imposed to restrict the deductibility of NOLs.

A special elixir deduction of 15.5 percent of the elixir selling price would yield the same result, for it would increase the net operating loss shown in column D by \$30,000: the sales revenue of \$193,500 times 15.5 percent equals \$30,000; deducting that amount in addition to all the other costs of production yields a negative taxable equity income of \$31,500, or a claim for a \$10,500 "refund," as in the case of a "nontaxable" \$1 credit.

### *"Capital Formation" Incentives*

We have previously noted that a cash investment grant of 8.7 percent would re-

duce the capital cost portion of elixir manufacturing costs by \$1.50 per bottle by relieving the firm of recovering and financing that much of the \$150,000 investment in elixir ingredients and container. Such a grant could be formulated as an elixir investment tax credit. To match the 8.7 percent cash investment grant, which would amount to \$13,043, the investment credit formulation would require that D "reduce his basis" in the asset by that amount of credit claimed. That is, since D would have had to pay only \$136,957 for the ingredients, this is the "basis" he would be permitted to recover (deduct) when the elixir is sold. As previously noted, the \$15,000 reduction in capital costs of production would result in the target \$1.50 reduction in elixir price. If, as in the case of many current investment tax credits, like that for reforestation, the elixir investment credit is made "nontaxable," i.e., the investor is not required to reduce his basis by the amount of the credit, the nominal credit rate to achieve the same \$15,000 cost reduction would be 5.8 percent: while the amount of the credit would thereby be reduced to \$8,696, requiring D to pay and privately finance \$141,304 to acquire the necessary asset, when the elixir was sold, he could nevertheless recover \$150,000; the larger subsequent deduction thus compensates for the smaller initial grant.

But perhaps the most popular form of capital-related incentive to encourage production is a lending program. Loans made to elixir producers on favorable terms could reduce the \$22,500 opportunity cost of funds. To achieve the target \$1.50 per bottle price reduction would require this cost element be reduced by two-thirds, say, by the government's agreeing to lend D \$100,000 at a zero rate of interest to help finance the purchase of the \$150,000. While such a generous program is well within the capacity of government lending agencies, it cannot be implemented through the tax system with our assumed one-third tax rate. So let us suppose the elixir loan incentive program is designed to reduce the cost of funds by one-third, i.e., by extending interest-free loans to finance one-third of the cost of elixir

investment, the principal repayable when the asset is sold, and the loan renewable when the asset is replaced. Any additional incentive to achieve the target \$1.50 price reduction can be provided by an investment grant/credit or sales incentive.

If such a financial incentive were offered by a government agency, as may be seen in Table 3, the supply price of elixir

would be reduced from \$20.85 to \$20.10. The upper portion contrasts the with and without loan incentive effects on the elixir activity. Displacing one-third of the private financing cuts the opportunity cost by one-third, \$7,500, which accounts for the \$0.75 reduction in the supply price; all other costs are unaffected.<sup>9</sup>

Formulating an equivalent financial tax

TABLE 3  
EFFECTS OF LOAN INCENTIVE ON ELIXIR MANUFACTURING COSTS; PRICE DETERMINATION

Item	End of period values:			
	No loan incentive \$0	incentive \$1	With incentive \$0	With incentive \$1
Inputs to produce 10,000 bottles of elixir:				
Chemicals and container.....(a)	\$150,000	\$0	\$150,000	\$0
Storage facility rental.....(b)	0	6,000	0	\$6,000
Labor services.....(c)	0	30,000	0	\$30,000
Opportunity cost of capital (d)	0	22,500	0	15,000
Total input expenditures..(e)	\$150,000	\$58,500	\$150,000	\$51,000
Beginning of period value of business asset.....(f)	\$0	\$150,000	\$0	\$150,000
Plus: Value added allocable to:				
Business suppliers, (a) + (b)	\$150,000	\$6,000	\$150,000	\$6,000
Elixir business employee, (c)	0	30,000	0	30,000
Elixir "capital income" share	0	22,500	0	15,000
Total value added.....(g)				
End of period value of asset, before sale as regular elixir ((f) + (g)).....	\$150,000	\$208,500	\$150,000	\$201,000
Claims to asset before sale..... as regular elixir: Total.....	\$150,000	\$208,500	\$150,000	\$201,000
Suppliers, employee.....	0	36,000	0	36,000
Government, as lender.....	0	0	50,000	50,000
Creditors.....	75,000	84,000	50,000	56,000
Equity holder.....	75,000	88,500	50,000	59,000

Tax accounts of capital income claimants:  
(With loan incentive, asset replaced)

	Form of loan proceeds			
	Cash		Deferred tax	
	Period #0	Period #1	Period #0	Period #1
Elixir-source taxable capital income: Total.....	\$0	\$15,000	\$0	\$15,000
to creditors.....	0	6,000	0	6,000
to equity holder.....	0	9,000	0	9,000
Tax share: Total.....	\$0	\$5,000	\$0	\$5,000
From creditors.....	0	2,000	0	2,000
From equity holder.....	0	3,000	0	3,000
Tax due and payable: Total	\$0	\$5,000	(\$50,000)	\$5,000
By creditors.....	0	2,000	0	2,000
By equity holder.....	0	3,000	(50,000)	3,000
After-tax, or disposable capital income: Total.....	\$0	\$10,000	\$0	\$10,000
Creditors'	0	4,000	0	4,000
Equity holder's	0	6,000	0	6,000

incentive, given the one-third tax rate, is disarmingly simple. D might be allowed to "expense," i.e., deduct, the \$150,000 investment when he makes it (at the end of period #0 in all the tables) and, thus qualify for a tax "refund" of \$50,000. Then, having thus "recovered" his cost, when the asset is sold as bottled elixir, he would not have a \$150,000 cost recovery and, consequently, he would pay "tax" of \$50,000. Substantively, the initial \$50,000 "refund" constitutes loan proceeds, the subsequent \$50,000 "tax" a repayment of the loan. This tax incentive is therefore best described as tax deferral, "deferral" seeming to evoke more positive sentiments than "loan." When the normal government loan program described in the upper portion of Table 3 is replaced by an equivalent tax incentive, one substitutes "deferred taxes" for "Government, as lender" in the table; \$50,000 of deferred tax displaces as much private financing as does \$50,000 formally lent.

Naturally, the tax-loan incentive has an effect on D's tax return that the proceeds of a formal loan would not. As may be seen in the bottom section of Table 3, D's tax return for period #0 calls for a \$50,000 "refund" to convey the loan which, if formally extended by a government agency, would have no impact on that year's return. Since the table is constructed under the assumption D replaces the \$150,000 asset and thus simply renews the loan, pre-tax capital income is \$15,000, of which \$6,000 flows to creditors, \$9,000 to D. These amounts are 12 and 18 percent pre-tax rates of return to the creditors' and D's \$50,000 investments, respectively, which assures the \$0.75 reduction in the price of elixir will be maintained so long as the incentive is in effect.

Three observations will conclude this analysis of deferred tax incentives. First, while deferred taxes are functionally interest-free loans, they are erratic incentive devices. The size of the loan depends on tax rates, not the size of the job to be done; and when tax rates change, the value of the incentive changes. Moreover, in a tax system with nonproportional tax rates, would-be agents to participate in government programs do not enjoy equal access

to the lending incentives by which the programs are implemented. The same structural weakness applies to nontaxable sales and investment incentives. As is generally the case, a direct approach to an objective is always superior to an indirect approach: if the objective is to reduce the price of elixir, a sales bounty, taxable like all other payments for the output, is better than any other incentive design.

Second, it will be noted that for D to be able to obtain the loan, he will "pay no tax" in year #0; the \$150,000 deduction "wipes out" his \$150,000 pathologist income.<sup>10</sup> Once again, focusing on the bottom line distorts the observer's vision, causing him to mistake the proceeds of a loan for a reduction in tax. If D had received a formal \$50,000 government loan, as many farmers and small businessmen do each year, and, in the same year, D had paid \$50,000 in tax, as some farmers and small businessmen also do, would these viewers-with-alarm conclude D's \$50,000 tax payment had been cancelled out? That D's pre-tax income had thereby been made "tax-exempt"? Not likely. Of course, favorable \$50,000 government loans do confer a benefit—7,500 per year in the elixir case. Whether this business incentive benefit accrues to the taxpayer who files the return, or is absorbed in accomplishing the incentive's objective as in our example, can only be determined by correctly measuring his disposable income, a task for which tax returns are ill-suited, not by scrutinizing the taxpayer's net tax due and payable.

Finally, it is common to categorize "expensing" as a condition equivalent to a "zero effective tax rate." The basis for this asserted equivalency may be seen in Table 3, where, with the loan incentive in effect, the cost of funds embedded in elixir market prices is \$15,000 and the value of the asset is \$150,000. This is a pre-tax 10 percent rate of return on \$150,000, and also the after-tax rate of return earned by the creditors and equity holder, combined, on their \$100,000 share of the asset. But "assets" are not taxpayers, claimants to the assets are, and the claimants to these assets do, indeed, earn taxable 15

percent rates of return. What users of the term "zero effective tax rate" really mean is that the cost of capital services entering the prices of output is the same as if there were no tax on capital income. But this condition obtains because taxpayers qua taxpayers, bear the \$7,500 burden of which purchasers of elixir in our example have been relieved. Would those who describe the condition portrayed in Table 3 as that of a "zero effective tax rate" apply the same descriptor to the equivalent outcome achieved by \$50,000 of interest free government lending technically labelled "loans" rather than "deferred tax"?

## V. Conclusion

This paper has been addressed to tax economists and lawyers, written with the constructive intent of improving their dialogue. It has stressed the importance of distinguishing tax incentive issues from tax policy for two reasons. First, the criteria for evaluating incentive policies differ from those for evaluating tax policies because the former, like public goods expenditure policy, are concerned with modifying the composition of NNP in purposive, if not always justified, ways, while the latter are concerned with paying the bill for these interventions with tax structures that both minimize distortions of private decisionmaking and distribute the burden of those expenditures in a manner that approximates generally accepted notions of fairness. And second, the distinction helps remind us that evaluations of both incentive and tax policies will be improved if we raise our sights from the bottom line of tax due and payable to the top of business tax returns, where the outcome of resource allocating decisions is measured so that we may trace backward to the bottom line how incentives and even defective income tax accounting rules have caused the net tax deposit to be what it is.

## ENDNOTES

\*\*The views expressed do not necessarily reflect the views of the Treasury or any other federal agency.  
1 Since the amount of a tax expenditure is the amount

by which tax receipts are reduced, designating the receipts reduction a programmatic expenditure additive to appropriated expenditures requires that the amount shifted to the uses side of the budget be restored to the sources side; a given amount cannot be both a "tax reduction" and an "expenditure." Restoration of the tax expenditure to receipts leaves the net budget balance unchanged.

2. . . it is clear that if these tax amounts were treated as line items on the expenditure side of the Budget, they would automatically come under the close scrutiny of the Congress and the Budget Bureau. But the tax expenditures are not so listed, and they are thus automatically excluded from that scrutiny. Instead, since they are phrased in tax language and placed in the Internal Revenue Code, any examination given them must fall in the classification of 'tax reform' and not 'expenditure control.' There is a vast difference between the two classifications." Surrey, [4], reprinted in [5], p. 4.

3 The adjective "maximal" rather than "maximum" is used intentionally. The conditions for resource allocational efficiency adumbrated here refer strictly to output and input markets. But, obviously, societies are concerned not only with assurance that prices always equal costs, they are also concerned with the distribution of the economic outcome among its members. Thus, a criterion additional to those mentioned is that, after market efficiency conditions are met, the distribution of the outcome, privately disposable income should meet some standard of fairness. Inevitably, however, policies to affect the distribution of the outcome will exert some influence on the supply of resources (preferences for work-leisure, or current-future consumption) and also preferences for varieties, so that for any "redistribution" policy, a different NNP and set of relative prices will obtain.

The maximum resource allocational efficiency thus requires satisfaction of both resource allocational efficiency and a distributional norm. Since we are not here concerned with distributional issues, which is a major tax policy concern, we take a distributional policy as given and, thus, describe achievement of resource allocational efficiency as securing "maximal," not "maximum," well-being.

4 Another condition for a maximal value of output is that the distribution of claims to the output generated in the course of producing the output should approximate a consensus view of fairness. In the presence of government that also exercises a claim to output, the government's share of NNP is called "taxes," and the remainder is called "disposable income," the income measure the distribution of which is subject to the "fairness" criterion. That is, in order that the mix of output yield a maximum of welfare, the implicit valuation should be by members of society with relatively more than less equal command over goods. Whether this criterion conflicts with efficiency criteria is a controversial subject and an issue of utmost importance in the design and evaluation ("reform") of tax systems to finance government expenditures, including those with which we are here concerned. For an excellent summary of the clash between the "fairness" and "efficiency" criteria, see Arthur M. Okun [1]. For this reason, no attention is given to "fairness."

5 In this hypothetical example of a two-year pro-

duction period, none of the capital income would be subject to tax under present law because the production period does not exceed two years. If the production period exceeded two years, only that part of the capital income representing interest paid or accrued would be taxable, i.e., capitalized as part of the cost of the asset being "constructed," as provided by section 263A(f) of the Internal Revenue Code of 1986.

<sup>6</sup>Markets do not adjust instantaneously. Thus the introduction of a price-reducing incentive will not immediately produce the desired result. Rather, it will first increase the residual equity income share, "profit," of the producer, and this sets in motion the forces of competition, attracting investment in additional capacity. Assuming the additional capacity does not cause input prices to rise, the additional capacity forces the price of output down.

<sup>7</sup>The initial investment grant of 8.7 percent means that the private investors need advance only \$137,000 to pay for their share of the \$150,000 of ingredients and container. The \$137,000 plus the 15 percent cost of funds totals \$157,500, recoverable from the sale of regular elixir. This is \$15,000, \$1.50 per bottle, less than the \$172,500 capital share of regular elixir product without the incentive.

<sup>8</sup>The percentage depletion allowance for minerals is a statutory percentage of the value of a mineral, the percentage and its availability depending on the mineral. It serves both as cost recovery allowance and also as an incentive. It functions as an incentive largely because unlike conventional cost recovery allow-

ances, percentage depletion allowances may continue to be deducted even after the cost of the deposit has been recovered completely. Thus, a percentage depletion that exceeds normally recoverable cost performs the same function as the sales incentive discussed in the text.

<sup>9</sup>The government loan program, favorable though it may be, obviously increases the riskiness of the private financing, particularly the equity portion. One would therefore expect that the equity holder might require a higher rate of return. However, in the interest of simplifying comparisons, 15 percent is retained as the weighted average cost of private funds.

<sup>10</sup>If the incentive had been introduced after the elixir firm had begun operations, D would have had \$13,500 of taxable elixir-source capital income to help absorb the additional \$150,000 deduction.

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