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TAX THEORIES AND TAX REFORM

Christopher H. Hanna*

I. INTRODUCTION

In the late 1960s, Charles O. Galvin argued that a comprehensive income tax base ("CTB") was both practical and desirable. He, along with others at that time, used the Haig-Simons definition of income as a guide in defining a CTB. Almost twenty years later, Congress enacted the Tax Reform Act of 1986 ("1986 Act"), which broadened the income tax base and lowered marginal tax rates. As a result, the 1986 Act could be viewed as a partial victory for CTB advocates, such as Professor Galvin. However, if the 1986 Act is viewed as a move towards a CTB, then the tax acts in the years since 1986 should be viewed as moving away from a CTB as Congress enacted more exclusions, deductions, and other tax preference items that narrowed the tax base.

In January 2005, President George W. Bush appointed a tax reform

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1. See Charles O. Galvin, More on Boris Bittker and the Comprehensive Tax Base: The Practicalities of Tax Reform and the ABA's CSTR, 81 Harv. L. Rev. 1016 (1968). Professor Galvin was responding to Boris Bittker's article, in which Bittker argued that the Haig-Simons definition of income had little normative value and provided very little help in the definition of income for tax purposes. As a result, Professor Bittker rejected a move towards a comprehensive income tax base and felt that each income and deduction item should be dealt with on an ad hoc basis. See Boris I. Bittker, A "Comprehensive Tax Base" as a Goal of Income Tax Reform, 80 Harv. L. Rev. 925, 982 (1967) ("A truly 'comprehensive' base, in short, would be a disaster."). See also R. A. Musgrave, In Defense of an Income Concept, 81 Harv. L. Rev. 44 (1967) (rejecting Bittker's ad hoc approach and accepting the accretion concept of income); Joseph A. Pechman, Comprehensive Income Taxation: A Comment, 81 Harv. L. Rev. 63 (1967) (arguing that Bittker misunderstands the implications of the Haig-Simons definition of income). These articles have been reprinted with additional replies in Boris I. Bittker et al., A Comprehensive Income Tax Base: A Debate (1968). Professors Galvin and Bittker continued their debate over a CTB in Charles O. Galvin & Boris I. Bittker, The Income Tax: How Progressive Should It Be? (1969).

2. See Galvin, supra note 1. See also Musgrave, supra note 1; Pechman, supra note 1.


5. See The President's Advisory Panel on Federal Tax Reform, Simple, Fair and Pro-Growth: Proposals to Fix America's Tax System 14 (2005) [hereinafter President's Tax Reform Panel Report] ("Throughout the 1990s, income tax rates rose, and many special individual and business tax provisions were enacted, narrowing the tax base.").
advisory panel to make recommendations to improve the tax system. On November 1, 2005, the panel released its recommendations, proposing the United States adopt one of two different types of tax systems: a modified version of the current income tax system ("Simplified Income Tax Plan") or a partial consumption tax system ("Growth and Investment Tax Plan"). As a result of the panel's report, fundamental tax reform has once again become a timely topic with the CTB concept resurfacing in many discussions.

Tax scholars have developed a number of theories over the years with respect to a pure (or normative) income tax system. These theories seem to be more important than ever, particularly in light of the current Administration's interest in tax reform. It appears that in developing a pure income tax system, three theories are of particular importance: the Haig-Simons definition of income, Samuelson depreciation, and the Cary Brown model. The Cary Brown model also is important in understanding a pure consumption tax system.

In this brief paper, I will discuss the history behind each theory and demonstrate an application of the theory. It should be noted that while it is critical to understand these three theories in establishing a pure income tax system, complying with them may not be feasible or desirable in all cases. Issues of equity, efficiency, and administrability will arise in establishing a pure income tax system. As a result, these issues must be considered in utilizing or implementing the three theories. In addition, nontax goals, as evidenced by the tax expenditure concept, also should be considered.

II. THE HAIG-SIMONS DEFINITION OF INCOME

The Haig-Simons definition of income is generally considered by most tax scholars to be the ideal definition of income. It is sometimes referred to as the Schanz-Haig-Simons definition of income, reflecting the

7. See President's Tax Reform Panel Report, supra note 5, at 107-90.
8. The tax panel discussed but did not recommend either a pure income tax system or a pure consumption tax system in its report. But Treasury Secretary John Snow has indicated that the panel's recommendations are merely a starting point in the process of tax reform. See Robert J. Wells, Is Snow Giving Tax Reform Panel Report the Cold Shoulder?, 109 Tax Notes 989, 989 (2005). As a result, if the Administration pursues fundamental tax reform, it may (or may not) be along the lines of a pure income or pure consumption tax system.
9. An understanding of the Cary Brown model is also critical in understanding the equivalence between a consumption tax and a wage tax. See text infra notes 26-46.
10. The tax expenditure concept, developed by the Treasury Department in the 1960s, is not particularly relevant in discussing a pure income tax system. Rather the tax expenditure concept focuses on special provisions in the tax laws that deviate from a pure or normal income tax system and that can be viewed as the functional equivalents of direct spending programs. See generally Stanley S. Surrey & Paul R. McDaniel, Tax Expenditures (1985).
early contribution of Georg von Schanz. This definition is the accretion concept of income, which defines income as the sum of consumption and accumulation. Robert Haig published his definition of income in 1921, explaining income as follows:

> [T]he increase or accretion in one’s power to satisfy his wants in a given period in so far as that power consists of (a) money itself, or (b) anything susceptible of valuation in terms of money. More simply stated, the definition of income which the economist offers is this: Income is the *money value of the net accretion to one’s economic power between two points of time.*

Haig focused on the point in time when the power to satisfy one’s wants increase, not necessarily the point in time when the wants are actually satisfied. As a result, Haig included savings in income even though it had not yet been consumed.

Henry Simons published his definition of income in 1938. Simons’s definition is considered a refinement of Haig’s definition, and it is Simons’s definition that is often cited today. Simons wrote that income is the “algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question.” Simons also noted that “in other words, [income] is merely the result obtained by adding consumption during the period to ‘wealth’ at the end of the period and then subtracting ‘wealth’ at the beginning.”

Probably, the most significant deviation from the Haig-Simons definition of income in the U.S. income tax system is the realization doctrine. Under the realization doctrine, appreciation in property is not taxed until the property is sold or otherwise disposed of. For example, assume an individual owns publicly-traded stock that has appreciated in value. Under a realization-based income tax system, the individual will defer paying taxes on the appreciation until a realization event, most likely a sale, takes place. As a result, much of the wealth of entrepreneurs and capitalists, such as Bill Gates and Warren Buffet, the two wealthiest Americans, has never been taxed because, in each case, the bulk of their

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14. *Id.* at 7.
18. *Id.*
19. See, e.g., Britter & Lokken, *supra* note 4, ¶ 3.1.1; Surrey, *supra* note 15, at 66. Other significant departures of the current U.S. income tax system from a pure income tax system include the lack of indexing of assets and debt for inflation, limitations on deductibility of losses, non-taxation of rental value from owner-occupied homes and other assets, and non-taxation of the value of goods and services created by the taxpayer’s own efforts.
wealth is held in stock of corporations that they created or acquired, Microsoft and Berkshire Hathaway, respectively. In other words, Gates and Buffet have primarily pretax wealth, while most individuals have primarily after-tax wealth. Professor William Andrews refers to the realization doctrine as the "Achilles' heel" of the income tax system, in large part, because of the tax deferral benefit of the realization doctrine. One commentator has noted that "[i]t is impossible to erect a sound structure on the flawed foundation represented by the realization requirement, which, as has been noted so often, has little to do with the proper measurement of economic income.”

The most discussed method for eliminating the tax deferral benefit of the realization doctrine is a "mark-to-market method" of accounting. Most agree that a mark-to-market method is a theoretically correct approach in a pure income tax system. Mark-to-market accounting implements the Haig-Simons definition of income, which most tax theorists feel is the ideal definition of income. As many commentators have noted, however, eliminating the realization requirement and adopting a mark-to-market approach for unrealized appreciation in property could lead to numerous problems. These problems include liquidity in paying the resulting income tax, administrability in determining the changes in fair market value of the taxpayer's assets (particularly those not publicly traded on an exchange), and possible political problems. It appears, however, that a strong argument could be made to partially or completely repealing the realization doctrine, at least as to publicly traded property where problems of liquidity and valuation generally are not present.


23. Even Simons seemed to agree that the realization requirement was needed for a workable income tax system. See SIMONS, supra note 17, at 100 (“This is where the realization criterion may properly be introduced as a practical expedient.”). See also id. at 153 (“[T]he realization criterion must be accepted as a practical necessity.”). See id. at 162 (“The realization criterion is not only indispensable to a feasible income-tax system . . . .”). See id. at 207-08 (“Outright abandonment of the realization criterion would be utter folly; no workable scheme can require that taxpayers reappraise and report all their assets annually; and, while this procedure is implied by the underlying definition of income, it is quite unnecessary to effective application of that definition.”).

24. See id. at 153 (“Escape from it [the realization doctrine] is possible in the case of actively traded securities . . . .”). A number of commentators have proposed a comprehensive mark-to-market system. See, e.g., Fred B. Brown, "Complete" Accrual Taxation, 33 SAN DIEGO L. REV. 1559 (1996); David J. Shakow, Taxation Without Realization: A Proposal for Accrual Taxation, 134 U. PA. L. REV. 1111 (1986). Others have proposed a partial
With the increasing use of derivatives in the business world, a mark-to-market approach may also be needed for assets with values that are dependent on publicly traded property.\textsuperscript{25}

III. THE CARY BROWN MODEL

A. Introduction

The Cary Brown model, sometimes referred to as the MIT model, generally holds that immediately deducting the cost of an asset is equivalent to excluding from income the future annual return of the asset. The Cary Brown model is named after its founder, Dr. Edgar Cary Brown. Dr. Brown, an economics professor at the Massachusetts Institute of Technology, published his model as a seventeen-page article in 1948 in a book containing a collection of essays, Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen.\textsuperscript{26} The Cary Brown model, as it is currently understood today, is discussed in less than one and a half pages of the article.\textsuperscript{27} The model will be discussed in two parts, in Sections B and C below.\textsuperscript{28}

The Cary Brown model, although it has been in existence since 1948, did not seem to attract much attention in either the tax law or economic literature until the late 1960s and 1970s.\textsuperscript{29} In fact, the awareness in the mark-to-market system. See, e.g., David Slawson, Taxing as Ordinary Income the Appreciation of Publicly Held Stock, 76 YALE L.J. 623 (1967); David A. Weisbach, A Partial Mark-to-Market Tax System, 53 TAX L. REV. 95 (1999). Each proposal has its share of critics. See David S. Miller, A Progressive System of Mark-to-Market Taxation, 109 TAX NOTES 1047 (2005) (discussing the comprehensive and partial approaches to mark-to-market taxation and then proposing a third approach: mark-to-market for publicly traded property and derivatives of certain companies and wealthy individuals).\textsuperscript{25}

\textsuperscript{26} See generally Daniel I. Halperin, Saving the Income Tax: An Agenda for Research, 77 TAX NOTES 967 (1997) (discussing the need for mark-to-market for certain derivatives). For the difficulty in valuing financial derivatives under a mark-to-market approach, see Bank One Corp. v. Commissioner, 120 T.C. 174, 331 (2003), which held:

The parties should determine the fair market value of each of FNBC's [First National Bank of Chicago] swaps and other like derivative products by valuing the derivative at its midmarket value as properly adjusted on a dynamic basis for credit risk and administrative costs. A proper credit risk adjustment must reflect the creditworthiness of both parties, with due respect to netting and other credit enhancements. A proper administrative costs adjustment must be limited to incremental costs.

\textit{Id.} \textsuperscript{26}

\textsuperscript{27} This discussion of the Cary Brown model has been partially adapted from Christopher H. Hanna, \textit{The Virtual Reality of Eliminating Tax Deferral}, 12 AM. J. TAX POL’Y 449 (1995).

late 1960s seemed to be primarily by public finance experts, with a limited number of tax experts focusing on the Cary Brown model. Not until the 1970s and 1980s, did a number of tax articles appear discussing the Cary Brown model. More recently, in the last five to ten years, the tax law literature on the Cary Brown model has become quite voluminous.

Much of the early awareness of the Cary Brown model may have been due to the appointment of Professor Stanley S. Surrey to the post of Assistant Secretary of the Treasury for Tax Policy in 1961 by President John F. Kennedy. Professor Surrey continued to serve as Assistant Secretary of the Treasury for Tax Policy until 1969, when he returned to the Harvard law faculty. While serving at the Treasury Department, Professor Surrey raised Congress's and taxpayers' awareness of the benefits of tax deferral. His tenure at the Treasury Department culminated in the Tax Reform Act of 1969, a significant tax reform package that seriously began to address issues of tax deferral. The awareness of the benefits of tax deferral increased during the late 1970s and early 1980s, partly as a consequence of high interest rates.

Professor William Andrews also should be given credit for developing interest in the Cary Brown model among American tax academics. In 1974, Professor Andrews wrote what many scholars consider to be one of the leading tax articles in the American legal literature. In the article, he discussed the time value of money benefit of tax deferral and spent a substantial portion of the article discussing the Cary Brown model and its importance to understanding tax deferral.

During the last thirty years, a number of articles have appeared in the tax law literature discussing the Cary Brown model. Sadly, much of it has focused on its application to expensing and depreciation and very little on its application to other areas of the income tax laws, for example, prepaid income and installment sales. This is unfortunate because the model can be applied to an almost endless number of areas of the income tax laws. In fact, one leading tax academic has remarked that all or almost all of the time value of money provisions in the income tax laws can be described through the Cary Brown model.

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32. See Andrews, supra note 29, at 1127.

33. Id.

34. See, e.g., Christopher H. Hanna, Comparative Income Tax Deferral: The United States and Japan (2000).

35. See Interview with Martin D. Ginsburg, Professor of Law, Georgetown University Law Center, 12 ABA Sec. Tax’n NewsL., Fall 1992, at 6, 10 ("One of Dan Halperin’s greater achievements has been to generalize what I just described [applying the Cary
B. PRESENT VALUE OF TAX SAVINGS

The critical passage from the Cary Brown article on the present value of tax savings, provides:

As they [taxpayers] telescope the depreciation deduction, the present worth of the tax rebates from the depreciation increases as the rebates are shifted closer to the present. In the limiting case, the asset could be written off in one year. In such an event, the tax rebate from depreciation would be proportional to the tax. Investment incentives would be restored to their pretax level, since the tax would proportionately reduce both the prospective net receipts from investment and its cost. By paying the entrepreneur the tax on the asset's cost, the Government would literally be a partner in the firm. It would make a capital contribution on new investment at the same rate at which it shared in the future net receipts of the enterprise. The contribution would be made at the same time the investment was undertaken. In contrast, the full-loss-offset system with economic-life depreciation would spread the Government's contribution out over the life of the investment, and would require the firm to carry a larger debt and interest cost until this contribution was finally received.36

In the above passage, the author is describing the tax effect when the cost of an asset can be spread (or recovered) over a shorter period than its economic life or, in the extreme case, be immediately deducted in computing taxable income. By shortening the period during which an asset's cost can be recovered, the present value of the tax savings is increased. For example, assume that an asset used in business has an economic life of ten years. The cost of the asset is $10,000. If the asset is depreciated over its economic life of ten years, using straight line depreciation and a tax rate of forty percent, the taxpayer would have $1,000 of depreciation each year for ten years. This would save $400 in taxes each year for ten years. Using a discount rate of six percent, the present value of $400 each year (beginning with the current year) for ten years would be $3,120.68.

If, however, the asset can be depreciated over four years, then the taxpayer would have $2,500 of depreciation each year for four years. This would save $1,000 in taxes each year for four years. Using a discount rate of six percent, the present value of $1,000 each year (beginning with the current year) for four years would be $3,673.01, which is greater than the present value of the tax savings if the asset were depreciated over ten years. This difference in present value is what Cary Brown is referring to when he states that "the present worth of the tax rebates from the depre-

ciation increases as the rebates are shifted closer to the present."

If the cost of an asset can be deducted immediately, or "expensed," the amount of tax saved is equal to the tax rate times the cost of the asset. In the above example, if the asset's cost of $10,000 could be deducted immediately, the taxpayer would save an immediate $4,000 in taxes. Of course, the present value of the tax savings would also be $4,000 because of the immediate deduction.

The taxpayer could take this immediate tax savings and invest it. If this additional $4,000 capital investment also could be deducted, the taxpayer would save another $1,600 in taxes, which could be invested in another deductible capital investment. By expensing the cost of the investment, the investor can increase the investment to $I/(1 - t), where $I$ is the original amount to invest and $t$ is the tax rate. In this case, it would be $10,000/(1 - .40) equaling $16,667.

C. INVESTMENT INCENTIVES RETURNED TO PRETAX LEVEL

Expensing, or immediate deduction of an expenditure, is the classic situation to which the Cary Brown model has been applied.\textsuperscript{38} Taking the above analysis one step further, expensing the cost of an asset is equivalent to exempting from income the future annual return on the asset.\textsuperscript{39} This is what Cary Brown is referring to when he states that "[i]nvestment incentives would be restored to the pretax level, since the tax would proportionately reduce both the prospective net receipts from investment and its cost."\textsuperscript{40} To illustrate this equivalence in its most basic form, assume investor $A$ has received $16,667 in salary income. Assume that $A$ is subject to tax at a forty percent tax rate and that any tax liability is due immediately. Also, assume that $A$ has three investment options. First, she can invest in a tax-free municipal bond paying ten percent interest annually. Second, she can invest in a regular bond paying ten percent interest annually. Finally, $A$ can invest in a regular bond paying ten percent interest annually. In addition, the cost of the bond is immediately deductible, that is, expensed.

Under the first option, investing in a tax-free municipal bond, $A$ will only have $10,000 to invest because she has to pay $6,667 (forty percent multiplied by $16,667) in taxes on her salary income of $16,667. Using a rate of return of ten percent annually, $A$ will earn $1,000 of tax-free interest income each year until maturity. At maturity, $A$ will not recognize gain or loss because her basis in the bond is $10,000.

Under the second option, investing in a regular bond, $A$ again will have only $10,000 to invest because she must pay $6,667 in taxes on her salary

\textsuperscript{37} Id. at 309.
\textsuperscript{39} This is sometimes referred to as the total exemption view. See \textit{infra} note 46.
\textsuperscript{40} Brown, \textit{supra} note 26, at 309.
income of $16,667. A will earn $1,000 of interest income each year until maturity. At a forty percent tax rate, A will pay $400 in taxes on the $1,000 of interest income leaving A with $600 in cash. At maturity, A will not recognize gain or loss because her basis in the bond is $10,000.

Under the third option, investing in a regular bond in which the investment is deductible, A will have $16,667 to invest because the amount is fully deductible. By investing $16,667 in a deductible bond, A can utilize the deduction to offset A's salary income of $16,667, leaving A with zero taxable income at the time of the original investment. A will earn $1,667 in interest income each year until maturity (ten percent multiplied by $16,667). At a forty percent tax rate, A will pay $667 in taxes on the $1,667 of interest income, leaving A with $1,000 in cash. By immediately deducting the cost of the bond, A will receive $1,000 after tax each year—the exact same position A would be in by investing in a tax-free municipal bond. When A collects $16,667 on the bond's maturity, A will have a gain of $16,667. At that time, A will owe taxes of $6,667 (forty percent multiplied by $16,667).

The following table summarizes the three options:

<table>
<thead>
<tr>
<th>Gross Income</th>
<th>Tax-Exempt Bond</th>
<th>Taxable Bond</th>
<th>Deductible Taxable Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deductions</td>
<td>0</td>
<td>0</td>
<td>16,667</td>
</tr>
<tr>
<td>Taxes (40%)</td>
<td>6,667</td>
<td>6,667</td>
<td>0</td>
</tr>
<tr>
<td>Cash to Invest</td>
<td>10,000</td>
<td>10,000</td>
<td>16,667</td>
</tr>
<tr>
<td>Return at 10%</td>
<td>1,000</td>
<td>1,000</td>
<td>1,667</td>
</tr>
<tr>
<td>Taxes (40%)</td>
<td>Exempt</td>
<td>400</td>
<td>667</td>
</tr>
<tr>
<td>Net Return</td>
<td>1,000</td>
<td>600</td>
<td>1,000</td>
</tr>
</tbody>
</table>

By allowing A to deduct immediately the cost of the bond, the government, according to Cary Brown, "would literally be a partner in the firm."41 It is as if the government had contributed $6,667 toward purchase of the bond. Because the government essentially has contributed this amount, which is forty percent of the cost of the bond ($6,667/ $16,667), it seems only fair that the government collect forty percent of the interest on the bond. As a result, the government will collect $667 of each interest payment on the entire investment ($667/$1,667) and will recoup its "investment" when the bond matures (or is sold). At maturity, A will have a gain of $16,667, resulting in taxes of $6,667, assuming that the tax rate remains at forty percent. The government will, therefore, receive $6,667 in taxes from A, which is equal to the amount that the government originally "contributed."

41. Id. at 310. See also Christopher H. Hanna, Demystifying Tax Deferral, 52 SMU L. REV. 383, 412-13 (1999) (analyzing in detail the partnership aspect of the Cary Brown model).
By expensing the cost of the investment, the investor can increase the
investment to \( I/(1 - t) \), where \( I \) is the original amount to invest and \( t \) is the
tax rate. In the above example, the investor would have only $10,000 to
invest if the investment was not deductible. By being allowed to immedi-
ately deduct the cost of the investment, the investor would have $16,667
to invest ($10,000/(1 -.40)). Another way of looking at this is that the
investor can increase the amount to be invested by the tax savings gener-
ated by expensing the cost of the investment.

The example also demonstrates the equivalence between a (postpaid)
consumption tax and a wage tax (or prepaid consumption tax). \(^{42}\) In the
first option, in which \( A \) invests in the tax-exempt bond, \( A \) is only taxed on
her salary income of $16,667. She is not taxed on the interest on the tax-
 exempt bond. More generally, \( A \) is taxed on wage income and not on
income from capital. As a result, option one is a very simple example of a
wage tax. In option three, \( A \) deducts $16,667, which she invests in the
regular bond. By allowing \( A \) to deduct the amount of the investment,
option three is an example of a consumption tax. By immediately deduct-
ing the cost of the bond, \( A \) will receive $1,000 after tax each year—the
exact same position \( A \) would be in by investing in a tax-free municipal
bond (option 1—wage tax). Under option three, when \( A \) collects $16,667
on the bond’s maturity, \( A \) will owe taxes of $6,667 (forty percent multi-
plied by $16,667). As a result, option one (a wage tax) is equivalent to
option three (a consumption tax).

D. Assumptions Underlying The Model

A number of assumptions or conditions must be made in order for the
Cary Brown model to apply. \(^{43}\) At first glance, these conditions appear to
make the Cary Brown model very limited in scope. But this is deceptive.
The conditions are in some cases not unreasonable as a practical matter,
and as a result, the Cary Brown model has substantial practical applica-
tion. In addition, even if some of the conditions are relaxed, much can still
be learned by utilizing principles derived from the Cary Brown
model.

The following list is taken from Professors Michael Graetz and
Deborah Schenk’s treatment of the subject in their textbook. \(^{44}\) First, the
applicable tax rates must remain constant. The tax rates can neither in-
crease nor decrease over the time period in question. Therefore, tax is
saved from the immediate deduction and “collected at an identical rate
on the earnings from an asset immediately deducted and on amounts re-

\(^{42}\) See Warren, supra note 29, at 988. See also Edward J. McCaffery, A New Under-
destroy the equivalence between prepaid (that is, wage) and postpaid consumption taxes).

\(^{43}\) See, e.g., Graetz & Schenk, supra note 11, at 293; Myron S. Scholes & Mark
A. Wolfson, Taxes and Business Strategy ch. 3 (1992); Shoup, supra note 29, at 266-
69; Graetz, supra note 29, at 1602; Johnson, supra note 38, at 1031-36; Alvin C. Warren, Jr.,

\(^{44}\) See Graetz & Schenk, supra note 11, at 293.
ceived at the close of the transaction (whether by the disposition of the asset or by some other event).”

Second, the deduction must produce an immediate tax savings equal to the deduction multiplied by the taxpayer’s marginal tax rate. This means that the deduction must offset income from other sources and is not lost or delayed. In other words, the deduction results in an immediate tax benefit. Third, the tax savings is assumed to be invested at a rate of return equal to the original investment, and the opportunities to invest at the assumed rate of return are unlimited.

III. SAMUELSON DEPRECIATION

The third important tax policy theory is closely linked to both the Haig-Simons definition of income and the Cary Brown model. In a paper published in 1964, Massachusetts Institute of Technology economics professor Paul Samuelson introduced the concept of economic depreciation, many times referred to as Samuelson depreciation. This concept has been most clearly described in the tax law literature by Professor Marvin Chirelstein, and it is his example that will be used here.

Assume a taxpayer purchases equipment for $4,000. In theory, the proper amount of depreciation deduction each year is equal to the decline in value of the equipment each year. This is consistent with the Haig-Simons definition of income, in which income is defined as consumption plus (or minus) the change in the value of assets. Also, in theory, the taxpayer purchased the equipment for the income stream that

45. Id. For a discussion of the Cary Brown model if the tax rates vary over time, see Hanna, supra note 41, at 395-98, 404-06. In general, expensing the cost of an asset is more beneficial than exempting the income of the asset from tax if the tax rates decrease over time. Conversely, exempting the income of the asset from tax is generally more beneficial than expensing the cost of an asset if the tax rates increase over time. See Brittke & Løkken, supra note 4, § 62.4.1; Johnson, supra note 38, at 1033-34.

46. If this third condition is relaxed, then an alternative view (the “tax savings view”) arises. According to the tax savings view, only the normal rate of return is exempt from tax as opposed to the entire return on capital being exempt (the “total exemption view”). See Alvin C. Warren, Jr., How Much Capital Income Taxed Under an Income Tax Is Exempt Under a Cash Flow Tax?, 52 Tax L. Rev. 1, 4 (1996) (“When the assumption that the invested tax savings from expensing produces the same rate of return as the original investment is relaxed, it sometimes is said that only the ‘normal’ rate of return on capital is exempt under cash flow taxation.”); Noel B. Cunningham, The Taxation of Capital Income and the Choice of Tax Base, 52 Tax L. Rev. 17, 26 (1996) (“The second view [tax savings view] is that the cash flow tax exempts the yield on an investment only to the extent of the rate of return available on the reinvested tax savings (‘tax savings view’).”)

If risk-taking is taken into account, then a third view arises. According to this view, the riskless rate of return is taxed under an income tax but not under a consumption tax. In addition, income from risk-taking is not taxed under either an income tax or consumption tax. See, e.g., Evsey D. Domar & Richard A. Musgrave, Proportional Income Taxation and Risk-Taking, 58 Q. J. Econ. 388 (1944) reprinted in Am. Econ. Ass’n, supra note 13, at 493-524; Joseph Bankman & Thomas Griffith, Is the Debate Between an Income Tax and a Consumption Tax a Debate About Risk? Does It Matter? 47 Tax L. Rev. 377 (1992).

See Warren, supra for a discussion of the various views of how much capital income taxed under an income tax is exempt under a consumption tax.


the equipment will generate for the taxpayer's business. Let's assume that the equipment is expected to generate income of $1,200 each year for five years. The pretax rate of return for the taxpayer's investment in the equipment is slightly greater than fifteen percent, compounded annually. In other words, $1,200 per year for five years, discounted at a fifteen percent rate of return, compounded annually, equals $4,000.

As a result, the present value of each payment is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Receipt</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$6,000</td>
</tr>
<tr>
<td>Present Value</td>
<td>$1,045</td>
<td>$ 905</td>
<td>$ 790</td>
<td>$ 687</td>
<td>$ 573</td>
<td>$4,000</td>
</tr>
</tbody>
</table>

The total present value of all payments equals $4,000, which is the original cost of the equipment.

At the beginning of year one, the present value of the expected income stream is $4,000. At the end of year one, there are only four $1,200 payments left to be received. When these four payments are discounted back to the end of year one at a fifteen percent rate of return, compounded annually, the present value is $3,427. The loss in present value for year one is $573. As Professor Chirelstein has written:

As each year of useful life expires the expected stream of payments becomes shorter and the present value of the sum of all remaining payments necessarily declines. There is just that much less to anticipate in the way of future returns. The taxpayer's economic loss from the year's operations—his annual cost—is measured by the decline in the present value of anticipated receipts which takes place between the beginning and the end of the taxable year. In effect, the difference between the value of the future income stream on January 1 and its value on January 1 of the following year represents the cost of using the machine for the year in question. If the object of the depreciation allowance is to reduce gross income by the true cost of operations, then the annual allowance should be no more or less than that amount.49

The schedule of the annual decline in the present value of the income stream that represents the taxpayer's investment in the equipment is as follows:

49. Id.
Based on the table above, the taxpayer's depreciation deduction each year should be: $573 in year one; $687 in year two; $790 in year three; $905 in year four, and $1,045 in year five. As a result, the theoretically proper amount of depreciation increases each year—the exact opposite of accelerated depreciation (a concept inherent in the current tax depreciation rules). 50

The computation of net income each year (utilizing Samuelson depreciation) and net income as a percentage of the unrecovered investment in the equipment are shown in the following table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Payment/Income Received</th>
<th>Depreciation</th>
<th>Net Income</th>
<th>Unrecovered Investment</th>
<th>Income as a Percentage of Unrecovered Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1,200</td>
<td>$573</td>
<td>$617</td>
<td>$4,000</td>
<td>15%</td>
</tr>
<tr>
<td>2</td>
<td>$1,200</td>
<td>$687</td>
<td>$513</td>
<td>$3,427</td>
<td>15%</td>
</tr>
<tr>
<td>3</td>
<td>$1,200</td>
<td>$790</td>
<td>$410</td>
<td>$2,740</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>$1,200</td>
<td>$905</td>
<td>$295</td>
<td>$1,950</td>
<td>15%</td>
</tr>
<tr>
<td>5</td>
<td>$1,200</td>
<td>$1,045</td>
<td>$155</td>
<td>$1,045</td>
<td>15%</td>
</tr>
</tbody>
</table>

In the above table, the net income declines each year as the amount of depreciation increases each year. The rate of return on investment remains constant at fifteen percent even though the net income declines each year because the investment also declines each year, reflecting the fact that some part of the $1,200 payment received each year is a recovery of the cost of the equipment. 52 Samuelson depreciation ensures that the investor's pretax return on the investment is reduced exactly by the statutory tax rate so that the effective tax rate is equal to the statutory tax rate. 53

It is generally conceded that it would be very difficult to adopt Samuelson depreciation. 54

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50. It should be noted that if the expected income stream is not level but rather decreases over time, then the theoretically proper amount of depreciation each year would be more level or may even decline over time. See BITTKER & LOKKEN, supra note 4, ¶ 23.1.4.
51. The numbers may be slightly off due to rounding.
52. BITTKER & LOKKEN, supra note 4, ¶ 23.1.4.
53. See Johnson, supra note 38, at 1042.
The primary reason is the difficulty in predicting the income stream that the equipment is expected to generate. This is in contrast to assets such as leases, preferred stock, and fixed-rate bonds, in which the future payments generally can be easily determined because they are preordained by contract. As shown, Samuelson depreciation “is simply a function of expected cash flows.” Despite the difficulty in applying Samuelson depreciation, however, it “is the only proper method of apportioning the taxpayer’s capital investment in accordance with the economic cost of use.”

It should be noted, however, that the United States has adopted principles based on Samuelson depreciation even in areas where the future payments are not fixed. For example, the rules for certain contingent payment debt instruments require adoption of a rate of return even though the actual payments may vary from the projected payment schedule using the rate of return. Any difference between the projected payments and the actual contingent payments is accounted for at a subsequent period in time when the actual contingent payments are made.

V. INTERACTION OF THE THREE THEORIES

The Haig-Simons definition of income and Samuelson depreciation establish a pure income tax system. More specifically, Samuelson depreciation complements Haig-Simons. The second component of the Haig-Simons definition is the net change in the value of the assets. Samuelson


55. In 1982, for example, Congress adopted the principles of Samuelson depreciation (that is, constant yield to maturity) with respect to the accrual of original issue discount on debt instruments. Tax Equity and Fiscal Responsibility Act of 1982, Pub. L. No. 97-248, § 231, 96 Stat. 324, 496-99. Ideally, Congress would have extended these principles even further to qualified stated interest (at least on debt instruments that also have original issue discount) so that all interest on a debt instrument—whether it be comprised of original issue discount, qualified stated interest, or both—accrues using a single yield to maturity. However, Congress chose not to do so and permitted taxpayers to continue recognizing qualified stated interest income and deductions using their normal method of accounting.


56. See Chirelstein, supra note 48, ¶ 6.09.

57. Id.

58. Treas. Reg. § 1.1275-4 (1996) (requiring determination of a constant yield to maturity on certain contingent payment debt instruments based upon the yield to maturity that would be called for on a noncontingent payment debt instrument with terms comparable to those of the contingent payment debt instrument).

59. One consequence of a pure income tax system utilizing the Haig-Simons definition of income and Samuelson depreciation is that the basis of property will always equal its value (or presumed value).
depreciation correctly demonstrates the change in the value of business or investment assets that are subject to depreciation. As Professor Chirelstein has noted, Samuelson depreciation "is the only proper method of apportioning the taxpayer's capital investment in accordance with the economic cost of use."\textsuperscript{60}

The Cary Brown model demonstrates the time value of money advantage that a taxpayer obtains by immediately deducting the cost of an asset. It also illustrates the advantage that a taxpayer enjoys when the deduction (that is, depreciation) exceeds the decline in the value of the asset, for example, accelerated depreciation versus Samuelson depreciation. As a result, it demonstrates the advantage a taxpayer receives if a pure income tax system, using the Haig-Simons definition of income and Samuelson depreciation as models, is not adopted.\textsuperscript{61}

It is possible that a government may want to adopt a tax system using the Cary Brown model as its baseline or guideline, that is, allowing an immediate deduction for capital expenditures or its equivalence (no immediate deduction but exempting the income generated by the asset). If, for example, a government were to permit a taxpayer to immediately deduct the cost of an asset, then the tax system is really a consumption tax system as opposed to an income tax system. In an income tax system, an individual is taxed once from labor (wages and salaries) and again from any investment or capital (interest, dividends, and capital gains).\textsuperscript{62} In a consumption tax system, all investments would be either immediately deductible or, in the alternative, the income from the investments would be exempt from tax. Consequently, investment or capital income is exempted from tax and the consumption tax is, in general, equivalent to a wage tax.\textsuperscript{63}

The United States tax system is primarily an income tax system but has elements of a consumption tax system.\textsuperscript{64} For example, an individual may

\textsuperscript{60} Chirelstein, supra note 48, ¶ 6.09.

\textsuperscript{61} See Graetz & Schenk, supra note 11, at 294 (stating that it is necessary to distinguish between immediately deductible expenses and capital expenditures because a too rapid deduction of capital expenditures undermines the income tax system).

\textsuperscript{62} See Chirelstein, supra note 48, at 433 ("Since 'income' can derive from only two sources, labor and investment . . . .").

\textsuperscript{63} See Warren, supra note 29, at 938; cf. Eugene Steuerle, Back-Loaded IRAs: Head Taxes Replace Income and Consumption Taxes, 77 Tax Notes 109, 109-10 (1997) (explaining that two individuals earning the same wages and investing in a Roth IRA will pay the same amount of taxes even though the first individual is not successful with the investments in the Roth IRA and the second individual is wildly successful; Roth IRAs are not income or consumption taxes but rather head taxes); McDaniel, supra note 11, at 257 ("[T]he highly successful investor, who derives higher income from the Roth IRA investment pays the same tax on earned income (and no tax on investment income) as the unsuccessful investor."); Graetz & Schenk, supra note 11, at 747 ("If investment yields are not constant, the Roth IRA has the curious effect of taxing two individuals with wildly different amounts of income at the same rate.").

\textsuperscript{64} See President's Tax Reform Panel Report, supra note 5, at 21-22 (stating that approximately thirty-six percent of the proceeds from household savings are effectively exempt from taxation).

A number of countries have some form of consumption tax, in many cases, a value-added tax ("VAT"). See id. at 38. "More than 120 countries use VATs to raise a portion of
deduct amounts contributed to a regular IRA. Income earned by the regular IRA is not subject to tax until distributed. When the amounts are distributed from the regular IRA, the individual must include the distribution in gross income at that time and pay taxes on it. As a result, the regular IRA is a form of consumption tax, that is, an immediate deduction is permitted for the investment amounts, and the investment amounts are not taxed until removed. Alternatively (or in addition), an individual may make contributions to a Roth IRA. No deduction is permitted for the contributions; however, income earned by the Roth IRA is not subject to tax and amounts removed from the account, assuming certain requirements are met, are not subject to tax. As a result, the Roth IRA is a form of wage tax, which in general, is equivalent to a consumption tax as demonstrated by the Cary Brown model.

A number of recent changes to the United States income tax system have led some to believe (from early 2003) that our tax system has subtly shifted from an income-based system to a consumption-based (or wage-based) system. To illustrate, in 2003, Congress lowered the maximum tax rates on dividends and capital gains. As a result, two types of capi-

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66. Id. § 408(e).
67. Id. § 408(d).
68. See McDANIEL, supra note 11, at 257 ("The regular IRA is based on a consumption tax model.").
69. I.R.C. § 408A. An individual may contribute to both a regular IRA and a Roth IRA in the same year subject to limitations. Id. § 408A(c)(2).
70. Congress enacted the Roth IRA in 1997, naming it after the late Senator William Roth, who was at that time chairman of the Senate Finance Committee. Taxpayer Relief Act of 1997, Pub. L. No. 105-34, § 302(a), 111 Stat. 788, 825.
Beginning on January 1, 2006, individuals have a similar choice with respect to 401(k) plans and 403(b) plans: the traditional 401(k) plan or the Roth 401(k) plan and the traditional 403(b) or the Roth 403(b) plan. Economic Growth and Tax Relief Reconciliation Act of 2001, Pub. L. No. 107-16, § 617(a), 115 Stat. 35, 103-06 (adding section 402A to the Code effective for tax years beginning after December 31, 2005).
71. I.R.C. § 408A(c)(1).
72. See McDANIEL, supra note 11, at 252 ("The Roth IRA thereby represents a tax on wages, with an exclusion for investment income.").
73. See, e.g., Daniel Altman, Accounts Chock-Full, or a Plan Half Empty?, N.Y. TIMES, Feb. 1, 2003, at C1; Edmund L. Andrews, Taking Steps Toward Goal of No Tax for Investors, N.Y. TIMES, Feb. 6, 2003, at C1; Bruce Bartlett, Bush's High Five, NAT'L REV. ONLINE, Feb. 10, 2003, http://www.nationalreview.com/rof_bartlett/bartlett021003.asp (By Bush's second term, it is possible that we will have made enough incremental progress toward a flat rate consumption tax that we may finally see fundamental tax reform fully enacted into law. If so, it will be testament to a very clever, yet bold strategy that was initially invisible even to people like me, who study such things for a living. I am impressed.)
tal income are taxed much more favorably than wages or services income, thereby moving the tax system closer to a wage tax system. In addition, Congress, in 2002 and 2003, accelerated the depreciation deductions for many types of depreciable property used in business bringing the tax system, at least temporarily, closer to expensing of depreciable business property (thereby moving the tax system closer to a consumption tax system).\(^7\)

Also, in 2001 Congress, increased the maximum amounts that can be contributed into qualified retirement plans, such as traditional IRAs, Roth IRAs and 401(k) plans.\(^6\) Now that the President’s Tax Reform Panel has recommended a partial-consumption tax as one of two possible tax reform plans, it will be interesting to see if the Administration pursues it.\(^7\)

One of the problems with a piecemeal approach in moving the tax base from an income base to a consumption base is that having elements of both systems can lead to some unintended consequences. For example, in 1948, Cary Brown wrote that “[i]f [expensing of investments is] applied to debt-financed assets [along with deduction of interest payments], it would raise investment incentives above their pretax level.”\(^7\) In other words, expensing coupled with an interest deduction on debt-financed investments yields an effective tax rate of less than zero.\(^7\) If the tax system were to permit full expensing of investments, it appears that the issue of debt-financed investments will need to be addressed.\(^8\) Allowing an interest deduction, excluding loan proceeds from income, and utilizing Samuelson depreciation are hallmarks of an income tax system. In contrast, allowing expensing of investments is the cornerstone of a consump-

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76. For regular IRAs and Roth IRAs, the annual contribution amounts were increased from $2,000 to $3,000 in years 2002 through 2004, $4,000 in years 2005 through 2007, and $5,000 in years 2008 and after. Id. § 601(a), 115 Stat. at 38, 94-95. For 401(k) plans, the annual exclusion of elective deferrals was increased from a base amount of $7,000 (indexed for inflation—$10,500 in 2001) to $11,000 in 2002, $12,000 in 2003, $13,000 in 2004, $14,000 in 2005, and $15,000 in years 2006 and after. Id. § 611(d)(1), 115 Stat. at 97-98.

77. See generally David S. Broder, Tipping the Republicans’ Hand?, WASH. POST, June 18, 2003, at A25 (“When I asked [Grover] Norquist what had prompted this exercise in candor, he said that when The Post’s editorial page invited him to explain the Bush tax strategy, he saw it as an opportunity to show his fellow conservatives that ‘we don’t have to try to operate under the radar screen. We can be very open about our agenda.’”).

78. Brown, supra note 26, at 314.

79. See id. (“One-year depreciation for debt-financed investment would not be necessary for incentive reasons. If applied to debt-financed assets [along with deduction of interest payments], it would raise investment incentives above their pretax level.”).

tion tax system. As a result, it would probably be unwise to retain a full interest deduction and also allow expensing of investments.81

A second problem with a piecemeal approach is that some of the more recent changes have moved the tax system closer to a consumption-based tax system while other changes have moved the tax system closer to a wage-based tax system. Under certain assumptions, a consumption tax is equivalent to a wage tax.82 In both types of tax systems, income from capital is generally not taxed. However, if the assumptions are relaxed, then a consumption tax becomes quite different from a wage tax. For example, one of the assumptions in demonstrating the equivalence is that of constant tax rates.83 In the U.S. tax system, there are progressive tax rates, and as a result, the equivalence between consumption and wage taxes breaks down.84 With the expiration of many of the accelerated depreciations provisions enacted in 2002 and 2003, which were evidence of a consumption tax system, it would probably be more accurate to state that the tax system has shifted closer to a wage tax system rather than a consumption tax system.85

VI. CONCLUSION

When Professor Galvin argued for a CTB in the late 1960s, the debate focused on whether a comprehensive income tax base could be adequately defined and implemented (using the Haig-Simons definition of income) or whether an ad hoc approach was needed in defining the income tax base. In the mid-1990s, Professor Galvin noted that some aspects of the Haig-Simons definition of income could become easier to implement. More specifically, Professor Galvin wrote:

With sophisticated computer technology and with the elimination of 50% of the filers [without substantial revenue loss], could we not require taxpayers to recognize gain or loss on readily marketable assets by a mark-to-market system? With respect to assets not readily marketable, could we not defer recognition of gain or loss until sale or other disposition (including transfers by gift and at death) and

81. See, e.g., President's Tax Reform Panel Report, supra note 5, at 151-90 (explaining that under the Growth and Investment Tax Plan, businesses would expense their capital expenditures and would not be entitled to deduct interest paid); Johnson, supra note 38, at 1067 (“Thus, one can argue that the interest payments on debt used to purchase or carry expensed investments should not be deductible.”). But see Bittker & Lokken, supra note 4, ¶ 52.2.3 (“Disallowance of deductions for interest on debt financing depreciable property thus would likely increase the inefficiencies resulting from accelerated depreciation.”).
82. See text supra notes 43-46.
83. Id.
84. See McCaffery, supra note 42 (progressive tax rates destroy the equivalence between prepaid (that is, wage) and postpaid consumption taxes).
85. See William G. Gale & Peter R. Orszag, Bush Administration Tax Policy: Summary and Outlook, 105 Tax Notes 1279, 1282 (2004) (“Instead, the tax cuts enacted to date and the proposed additional changes would move the system toward a wage tax . . . . “).
then average back the gain or loss over the holding period . . . ?

In more recent times, however, the tax policy debate appears to have shifted away from whether a comprehensive tax base can be adequately defined or whether such a base is even desirable. Rather, most tax scholars seem to agree with the concept of a comprehensive tax base but disagree as to whether it should be an income base, a consumption base, or a combination of the two bases. In fact, despite having made strong arguments for many years for a comprehensive income tax base, Professor Galvin has more recently acknowledged that some hybrid tax base of income and consumption is necessary.

Despite the shifting tax policy debate that Professor Galvin has participated in and observed over the years, one aspect has remained constant—the importance of thoroughly understanding the Haig-Simons definition of income, Samuelson depreciation, and the Cary Brown model. The first two theories evidence a pure income tax system, while the Cary Brown model evidences a consumption tax (or wage tax) system. In fact, with the increasing emphasis on consumption taxes by both tax scholars and the government, a thorough understanding of the Cary Brown model has taken on added importance. But the Cary Brown model also is important with respect to an income tax system. It demonstrates the time value of money benefit that a taxpayer receives if a pure income tax system is not adopted—a benefit when pushed to the limit effectively results in exempting income from capital from tax.

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87. If fundamental tax reform fails to gain any momentum, then CTB advocates may get another partial victory in the form of the alternative minimum tax ("AMT"). The AMT, which generally has a broader base and lower rates than the regular income tax system, is projected by the Treasury Department to affect 21.6 million taxpayers in 2006 and 52 million taxpayers by 2015. See President's Tax Reform Panel Report, supra note 5, at 10.

The consumption tax base can be broken down into two different systems: a prepaid consumption tax (that is, wage tax) and a postpaid consumption tax. See McCaffery, supra note 42, at 824-25.

88. See Galvin, supra note 86, at 558.