

## BIBLIOGRAPHY

- Barr, Nicholas. "Economic Theory and the Welfare State: A Survey and Interpretation." Journal of Economic Literature 30 (1992): 741-803.
- Currie, Janet, and Nancy Cole. "Welfare and Child Health: The Link Between AFDC Participation and Birth Weight." The American Economic Review 83 (1993): 971-985.
- Gallup, George, Jr. Public Opinion 1991. Wilmington, Delaware: Scholarly Resources, Inc., 1992.
- Heien, Dale, and Pompelli, Greg. "The Demand for Alcohol Beverages: Economic and Demographic Effects." Southern Economic Journal 55 (1989): 759-770.
- Larsen, Richard J., and Morris L. Marx. Statistics. Englewood Cliffs, New Jersey: Prentice Hall, 1990.
- Moffitt, Robert, and Rangarajan, Anuradha. "The Work Incentives of AFDC Tax Rates." The Journal of Human Resources 26 (1991): 165-179.
- National Longitudinal Survey of Youth. 1988 and 1989 Survey Data. Computer Software.
- Rofuth, Todd W., and Henry Weiss. "Extending Health Care to AFDC Recipients Who Obtain Jobs: Results of a Demonstration." Health and Social Work 16 (1991): 162-169.

**THE ADVANTAGES AND DISADVANTAGES  
OF IMPLEMENTING A CONSUMED-INCOME  
TAX IN THE UNITED STATES**

**KEVIN RIVARD**

Kevin Rivard, Trinity College, Class of 1995, was born in Washington D.C. on August 3, 1973. His father, Loren, worked for the Ford Administration in the Department of the Interior. In 1978 he moved to Baltimore along with his family, where he attended Friends School. In fifth grade he moved to Atlanta, where he attended Pace Academy. In 1986 Kevin's father died due to cancer of the esophagus, leaving Kevin's mom, Betsy, to raise him, his brother, Andre, and sister, Sarah. In high school Kevin competed in soccer; his senior team finished second in the state. He also wrestled, finishing second in state. While he was captain, the team won the championship. He graduated from high school in 1991. He attended Duke University in the same year, where he majored in Economics and Computer Science. He played club soccer, was a member of Delta Sigma Phi fraternity, and T.A. a computer science class. He also tutored at E.K. Poe Elementary School, along with writing for the *Chronicle*, the Duke newspaper. He plans to work for Price Waterhouse, advising law firms on the amount of damages that should be awarded in different cases.

## Introduction

Rep. Bill Archer who will head the House Ways and Means Committee next year has stated the desire to replace the income tax with a national sales tax. He indicated that the tax would be "some form of broad-based consumption tax" such as a direct sales tax or a value-added tax (VAT). Currently local and state governments are the only ones allowed to assess a sales tax. Consumption taxes have been getting increased exposure recently, but it seems as if many lawmakers have discounted consumed-income taxes an option. Why has a consumed-income tax never been implemented in a major economy, and why are they not being considered along with sales taxes and VATs for implementation in the United States?

Many economists, including Dale Jorgensen, who visited Duke last year, believe consumption taxes result in an increased incentive to save, and therefore invest, relative to income taxes. Income and consumption taxes cause a loss of incentive to work; however, a consumption tax ideally keeps more incentives to work and reduces incentives to spend as compared to an income tax. People save money that they do not spend, and increased savings translates into increased investment. The theory says that this investment would stimulate the economy resulting in higher average income. I plan to explore the legitimacy of these arguments.

Another question in the minds of economists is if various forms of consumption taxes are regressive. Regressive policies turn the tax laws toward a flat-tax schedule, whereas progressive policies aim to tax the poor less or the rich more. If the poor spend a higher proportion of their income than the rich, they would be taxed at a higher rate than the rich under many consumption taxes. A regressive policy would have a hard time gaining the popular support needed for this kind of sweeping change.

## History of the Income Tax

On February 25, 1913, Congress ratified the 16th Amendment to the Constitution, and the Federal income tax became effective on March 1, 1913. The original normal rate was 1% and applied to a small portion of the population, while the maximum rate was 7% on income over \$500,000. From 1941 to 1944 the percentage of Americans subject to the income tax rose from 45% to 80%, and wage withholding was implemented. "In the 50 years since World War II, the income tax has become a 'mass' tax, and the Code has become riddled with deductions, exemptions, exclusions, and credits. The system is no longer, strictly speaking, an income tax."<sup>107</sup>

The current system does not tax all income alike, raising concerns about the simplicity, equity, and efficiency of the system. There have been many changes and exemptions added to tax law to please different special interest groups. These inefficient and confusing changes have created the need for expensive

<sup>107</sup>Peterson, p. 13.



accountants. In corporate taxation, businesses spend enormous sums of money trying to find exemptions in the loophole ridden tax code. "The overall cost of tax compliance has been estimated to reach into the hundreds of billions of dollars annually."<sup>108</sup>

There has been a call for tax reform for many years. The Tax Reform Act of 1969 was jokingly referred to as the "Lawyers and Accountants Relief Act", because it did not really simplify the code. In the mid-1970s William Simon, then-Secretary of Treasury, said "It is time to start over from scratch and develop a new tax system in the United States. It must be a system that is designed on purpose, based on a clear and consistent set of principles, which everyone in the United States can understand."<sup>109</sup>

### Reasons To Change the Existing System

There are at least four reasons to change tax systems:

- to reduce complexity and the administrative costs of taxation;
- to eliminate disincentives to incorporate;
- to eliminate disincentives for savings;
- to enhance our competitive position in a global economy;

Reducing complexity must be at the heart of any reform. In 1990 there were ten million Americans who did not file tax returns although required to by law, and a third of them were entitled to refunds.<sup>110</sup> The complexity of the system is causing people to drop out or spend large sums of money to comply. An improved income tax could reduce this complexity and increase compliance, but lawmakers should examine all forms of taxation.

The current system taxes corporations twice, once at the business level, when profits are reported, and again at the stockholder level. This double taxation is a disincentive to incorporate and should be removed in any system the United States moves to. Either an improved income tax or a consumption tax could eliminate this disincentive.

Changing tax systems may increase overall savings and investment. The lack of domestic savings and domestic investment in the US economy has been an issue for some time. Many countries save at much higher rates than the US. The US net national savings rate fell from an average of 9.8% of GDP in the 1960s to 3.6% in the 1980s, while Japan and the E.C. countries today save at a rate well over 10%.<sup>111</sup> During the 1980s savings in the US of households and businesses was less than 15% of GNP, while that of Japan was over 30%.<sup>112</sup> In exchange for current satisfaction, Americans may be sacrificing a better life in the future.

There is some debate, however, over whether increasing domestic savings necessarily increases total investment. If the US is a small open economy and has

no effect on international interest rates, then total investment would remain constant even when domestic savings increased. However, if the US can influence international rates, then the increased saving would result in increased total investment. See graphs on page 32 in section VII.

Is the current income tax more of a disincentive to save than a consumption tax would be? An income tax reduces the amount of money workers take home; therefore, increasing and distorting the incentive to go on vacation or engage in leisure activities. An income tax discriminates in favor of those who consume early in life rather than saving and consuming later, by double taxing capital gains. To see an example of this discrimination, see example 1 on page 25.

Under an income tax, individuals are taxed on their earnings and again on income from savings. Almost all income from capital, including gains from inflation, is taxed. It is possible to break even in real terms, but gain money in nominal terms and, therefore, have to pay capital gains. This situation results in a loss in real terms, reducing the amount of investment, because of fear of inflation. Eliminating the double-taxation of income from capital creates the right incentives for saving and investing. A consumption tax distorts the work-leisure decision of taxpayers, but not the choice between saving and consumption.

The *Blueprints for Basic Tax Reform*, released by the U.S. Treasury in 1977, point out that a serious drawback to the accretion income base is that it leads to double taxation of savings: "savings are accumulated after payment of taxes and the yield earned on those savings is then taxed again."<sup>113</sup> There have been efforts to reduce this problem, but these efforts add confusion to the law. At the time the Blueprints report was written, there was the investment tax credit, accelerated depreciation, and special tax rates for capital gains. "To this extent, this is equivalent to converting the base from accretion income to consumption."<sup>114</sup> The current law is a combination of consumption and income taxes, creating confusion that is costly in terms of paying for accountants.

Any tax system that we adopt should enable us to compete in the global economy. With other nations investing at a much higher rate, the US will be left behind unless our return on investment is extremely high. Because information exchange and business transactions now occur on a global scale, the income tax has become outdated. Tax policy is trade policy.<sup>115</sup> If the income tax system imposes burdens on investment, businessmen may invest in countries without these burdens, instead of the US. Of course, if the US is a small open economy, changing domestic savings may have little effect on the amount of domestic investment.

### Alternatives to the Income Tax

There are many alternatives to the income tax. Many of them are so-called consumption taxes, meaning that they tax what people spend instead of what they earn. In 1651 Thomas Hobbes wrote:

<sup>113</sup>Blueprints, p. 23.

<sup>114</sup>Blueprints, p. 23.

<sup>115</sup>Peterson, p. 14.

<sup>108</sup>Peterson, p. 14.

<sup>109</sup>Peterson, p. 13.

<sup>110</sup>Peterson, p. 14.

<sup>111</sup>Peterson, p. 14.

<sup>112</sup>Fellows, p.28.



For what reason is there, that he which laboureth much, and sparing the fruits of his labor, consumeth little, should be more charged, than he that live idly [*sic*] getting little, and spendeth all he gets: seeing the one hath no more protection from the Commonwealth than the other?<sup>116</sup>

Consumption tends to be more constant during a person's lifetime than income and could, therefore, be considered a better indicator of ability to pay. Perhaps it would be more equitable to tax consumption than income.<sup>117</sup>

One tax option is the consumed-income tax (CIT). A CIT taxes only the proportion of income spent on goods, not the money saved or invested in stocks or bonds or "qualified accounts". A value added tax (VAT) also could be substituted for the income tax. The VAT taxes the amount of value added to the good at each production level. A sales tax simply taxes the selling price of a good. Another option, similar to the VAT, is the business transfer tax (BTT), which taxes all domestic sales by businesses less purchases from other businesses.

Any viable alternative must satisfy the following characteristics, as laid down by Shirley Peterson, former head of Internal Revenue:

- the tax should be simple;
- it should be easily understood and administrable;
- it should be fair;
- it should minimize opportunities for tax avoidance;
- it should not discourage savings;
- it should be neutral with respect to the economic allocation of resources;
- it should enhance the country's position in a global economy.<sup>118</sup>

### The Consumed-Income Tax

Both the Blueprints and the U.K. Institute for Fiscal Studies' report of 1978, *The Structure and Reform of Direct Taxation*, concluded that converting the income tax to a consumed-income tax (CIT), or a cash-flow tax as it was called in the Blueprints, would be feasible and desirable.<sup>119</sup> This tax varies from the VAT and sales tax, because it requires each household to fill out a tax return, as they must currently.

The Blueprints point out that "In some respects a broad-based consumption tax is more equitable than a broad-based income tax. It is also easier to design and implement and has fewer harmful disincentive effects on private economic activity."<sup>120</sup>

<sup>116</sup>Thomas Hobbes, *Leviathan*; or, *The matter, forme and power of a commonwealth, ecclesiasticall and civil*. (London: 1651) from AICPA, p.19.

<sup>117</sup>AICPA, p. 19.

<sup>118</sup>Peterson, p. 15

<sup>119</sup>Seidman, pp. 65,66

<sup>120</sup>Blueprints, p. 23.

The consumed income tax is also known as an expenditure tax or cash-flow tax. The major difference between this tax and a comprehensive income tax is that the change in an individual's net worth is effectively excluded from the tax base under a CIT. In many other respects, the two taxes are very much alike. Consumption is included in both tax bases. The CIT, but not a comprehensive income tax, does include the flow of consumption from consumer durables and owner-occupied housing and certain other forms of in-kind consumption.<sup>121</sup>

Qualified accounts would be established by banks and other financial institutions, which would keep records of deposits and withdrawals. A deposit in the account could buy any type of financial asset -- savings bank deposits, corporate shares, bonds, mutual funds, or any other claim to current or future income. The future balance of the account would depend on the profitability of the investment. No tax would be assessed on the interest, dividends, or capital gains as they are earned, "but the taxpayer would be required to include in his tax base the full value of any withdrawals from his qualified account that were not reinvested in similar accounts."<sup>122</sup> The use of qualified accounts would ease the taxpayer's record keeping burden.

Qualified accounts would be very similar to the qualified retirement accounts that exist under current law. Individual Retirement Accounts (IRA's) provide the taxpayer a current deduction for contributions to funds for retirement, and include withdrawals from the fund in the tax base after retirement. There are two major differences between qualified accounts that would exist under a CIT and the retirement accounts that currently exist. First, the taxpayer could withdraw funds from the qualified account without penalty at any time during the her lifetime. Second, there would be no statutory limit to the amount that could be contributed to a qualified account.<sup>123</sup>

Individuals could keep qualified accounts with savings banks, corporations, stockbrokers, and many other types of financial institutions. The institution would report deposits and withdrawals to the individual and the tax authorities. With a cash-flow tax, all withdrawals would be added to the tax base, with all deposits subtracted. Checking accounts, unless they are interest bearing, should not be qualified accounts.

There is debate over which forms of saving and investment should be exempt from the CIT. Currently some forms of saving are exempt from the income tax, such as retirement plans like IRAs and 401Ks and the interest earned on them; however, there are penalties for early withdrawal of the funds in these plans. There are many goods that act like both consumption goods and capital investments, such as education. Should they be exempt or taxed?

Consumer durables are purchased items that have characteristics of both investment and consumption goods. It is feasible to apply the cash flow concepts to consumer durables; however, how can one measure the annual consumption of a house or car? To ensure that the entire consumption value is included in the tax

<sup>121</sup>Blueprints, p. 113.

<sup>122</sup>Blueprints, p. 114.

<sup>123</sup>Blueprints, p. 114.



base, no deduction should be allowed for consumer durables. This decision makes the entire tax liability of a house fall upon an individual in the year it is purchased. Perhaps the liability could be spread over a number of years. Of course, "Measuring annual service flows directly would require the measurement of annual depreciation and annual imputed rent on the value of the asset."<sup>124</sup> The elimination of the need to calculate depreciation is a key advantage of the CIT and should be maintained.

The sale later of the durable would result in no tax liability. For example, the purchase of a \$4,000 car would not allow a deduction in the year the consumer bought it. Later, if it is sold for \$2,000, the sale is not included in the tax base.

Borrowed money, unless it is subsequently invested, would be included in the tax base under a CIT, since it would be consumed. The tax would be imposed whether or not the borrower had an income, although at lower rates for the poor. Money lent would be deductible under a CIT.

Itemized gifts should be deductible by the donor and included in the receipts of the recipient. The recipient is the one consuming the gift and is liable for the consumption. This assignment of tax liability keeps the theoretical consumption nature of the tax in place. Those against a deduction for the donor argue that she should not escape liability simply because she decided to give the wealth to others instead of consuming it.

Why would someone buy something only to give it away and avoid liability? Also, there definitely would be a limit to the time that someone could own a gift before giving it away. Charities that receive donations would not have to pay tax on them, as the donor has already paid it.

Conceptually, under an ideal CIT, deductions for charitable contributions should not be allowed. Investment would then not be biased toward charitable organizations. Some would argue that charitable donations aid the entire community and should be encouraged through tax breaks. "The decision whether or not to allow the deduction of charitable contributions is not essential to the basic integrity of the overall proposal."<sup>125</sup>

No property tax deduction would be allowed under either a CIT or ideal income tax. Since a higher property tax results in a lower value for property, the tax is already excluded from the base.<sup>126</sup>

There are two methods of measuring tax liability. In the cash-flow method, money placed in qualified accounts would be exempt from current income taxes. When the interest or the initial deposit is removed, it would be subject to tax. In the summer of 1992 Senators Pete Domenici (R-NM) and Sam Nunn (D-GA) suggested replacing the current individual and corporate income tax system with a cash-flow approach, hoping to provide relief to savers by exempting income from savings and investment from taxation.

In the prepayment method the taxpayer would prepay the taxes when he initially earns money. Money saved or invested would be taxed in the year that it

was earned, but there would not be a tax on future profits derived from the savings or investment. Individuals would, in effect, prepay their taxes under this method.

The prepayment and cash-flow methods are conceptually similar, unless progressive tax rates are implemented, as they probably will be. Since an individual's current bracket may differ from his future tax bracket, the methods may cause two different amounts to be taxed. Examples of the different methods are in the **Simulations and Equations**.

The prepayment method has an advantage for personal taxes, because it does not penalize people who make money off investments, causing them to move up a tax bracket. Under the cash flow method, they may have to pay higher taxes on the same investment. The cash-flow method would reduce the incentive to invest, diminishing the effectiveness of the tax. Also, the administrative costs may be lower under the prepayment method, as I'll discuss later.

The family should probably be taxed as a unit. To tax each family member as an individual, it would be necessary to allocate consumption among family members. The simplicity of the CIT rests on the ability to deduct outlays that are typically for the family from the tax base.

The tax rate under a consumed-income tax may have to be higher than under an income tax, because income from capital is taxed under an income tax and not under a consumed-income tax. We assume that the government would want to keep the amount of tax revenue constant in present value terms. What would the tax rates under a consumed-income tax be, compared to an income tax? I will consider a system in which there are no corporate taxes at all in the section **Simulations and Equations**.

The consumed-income tax would have a higher tax rate on wage income than the income tax. A major concern in the implementation of the CIT is the effect that the increased rates would have. Under a revenue neutral change, would there be an increased or decreased GDP?

The corporate income tax would probably be eliminated under a CIT, since the consumption by corporations is investment. The idea of eliminating the corporate income tax is worthwhile, but difficult to pass politically. This tax causes a reduction in the amount of business investment, as do capital gains taxes.

The comparative administrative costs of income versus consumed-income taxes must be considered also. Consumed-income taxes would eliminate the need to calculate depreciation, reducing the administrative costs of filing taxes. Would it be more or less expensive for the average American to file a tax return?

Under the prepayment method, certain portions of tax filing would be eliminated, while few new portions would need to be added. Since the entire amount of income is taxed immediately, there is little need to keep track of whether money is invested or consumed. Currently, money earned is taxed, but capital investment needs to be monitored also. A prepayment method CIT would eliminate this paperwork. Administrative costs would be reduced substantially.

Also the government would not have the risk of taxpayers' investments going bankrupt, since the taxes have already been paid. The prepayment method reduces the administrative costs, and reduces the disincentives to save.

The possible regressivity of consumption taxes is a key reason why many of them have not been implemented in the United States. However, a consumed-income tax does allow the possibility of different tax levels for different

<sup>124</sup>Blueprints, p. 122.

<sup>125</sup>Blueprints, p. 117.

<sup>126</sup>Blueprints, p. 118.



consumed-income levels, thereby maintaining the possibility of taxing at the current rate for the rich and poor across the board. Of course, a poor spendthrift or a rich miser would not be taxed as they were in the past, and this is the purpose of the change. The incentive to spend introduced by the double taxation of income from capital would be eliminated. Taxpayers would make the consumption versus saving choice without a bias either way. This helps the economy in the long run.

Studies have shown that the poor do spend a higher proportion of their income on consumption than the rich; however, these studies may have been in error, because there are many different ways to decide the amount of saving that a household does.<sup>127</sup> The different brackets for a CIT will depend on how saving varies with income. If the savings rate for each income level can be found, then the current amount of tax revenue from each bracket can be maintained. One approach to estimating the joint distribution of income and saving using household-level data is to subtract expenditures and taxes from household income to create a residual measure of saving, similar to the approach in the National Income and Product Accounts (NIPA). A different method is to measure net worth for a household at two points in time and then compute cash saving as the change in assets minus the change in liabilities, adjusted for capital gains.<sup>128</sup>

Sabelhaus indicates that "There are large statistical discrepancies in the survey data between residual and net worth saving measures."<sup>129</sup> The net worth savings rates are lower for the rich and higher for the poor than the commonly used residual measure, meaning that a consumption tax would not be as regressive if judged using net worth. The current methods of research based solely on the residual method may be distorting the data against a CIT. The rates for the rich may be lower than previously thought.

Most economists conclude that replacement of the current hybrid income tax with a CIT would simplify the law. "Depreciation rules, inflation adjustments, and allocation of undistributed corporate income all become irrelevant because all forms of saving are removed from the tax base."<sup>130</sup>

Reporting of sales must occur in order for a consumption tax, but not a CIT, to work. The question is whether more people fail to fill out complicated income tax forms now than would not report future sales. I believe that reporting may be a problem, but not with the CIT.

Any of the various plans pose transitional problems. If someone was taxed on earnings, they should not be taxed again when they use that money to consume. Therefore some phasing in of any program chosen should occur. Retirees especially would object to any consumption tax since they have already paid taxes on all their income. *Blueprints for Basic Tax Reform* contains proposals for grandfathering existing assets and phasing in new rules.

In the short-term, the switch from income to consumed-income taxes would cause many problems with the elderly, who have already paid taxes on their

savings. These problems would have to be minimized, but if indeed consumed-income can be proven to be more efficient, then these problems should be dealt with.

The current income tax system is riddled with inconsistencies and loopholes. Replacement seems like a good idea economically, but what are the political chances for success? Would special interest groups slice up a consumption tax as they have the income tax? I believe that the consumed income tax is a politically viable and economically efficient remedy to our national tax confusion and over-consumption woes. I intend to try to prove it quantitatively.

### Simulations and Equations

Example 1: Income Taxes discriminate against saving early in life.

Consider two individuals X and Y, and a two year period in which any income not spent in year 1 is saved and then spent in year 2. Both individuals earn \$10,000 a year, all of which is taxable. Individual X saves \$2,000 per year of after-tax income, earning a before-tax interest rate of 5%. Individual Y spends all of his money in the year he earns it.

Assuming a flat tax rate of 20%, both X and Y pay an income tax in Year 1 of \$2,000, leaving them with after-tax incomes of \$8,000. X will spend the \$2,000 saved plus the interest of \$100 in year 2. In year 2 X has taxable income of \$10,100, after adding the accrued interest. His income taxes are \$2,020, yielding an after-tax amount of \$8,080.

After considering the present value of taxes to each of the two,

$$X: \$2,000 + \$2,020/(1.05) = \$3924$$

$$Y: \$2,000 + \$2,000/(1.05) = \$3905$$

one can see that X's tax burden is more than that of Y. X is suffering higher taxes simply because he chose to allocate some of his present disposable income from consumption to savings.<sup>131</sup> If X had decided to spend and not save early in life, the total tax burden would have been less.

<sup>127</sup>Sabelhaus, p. 331.

<sup>128</sup>Sabelhaus, p. 332

<sup>129</sup>Sabelhaus, p. 332

<sup>130</sup>Peterson, p.37

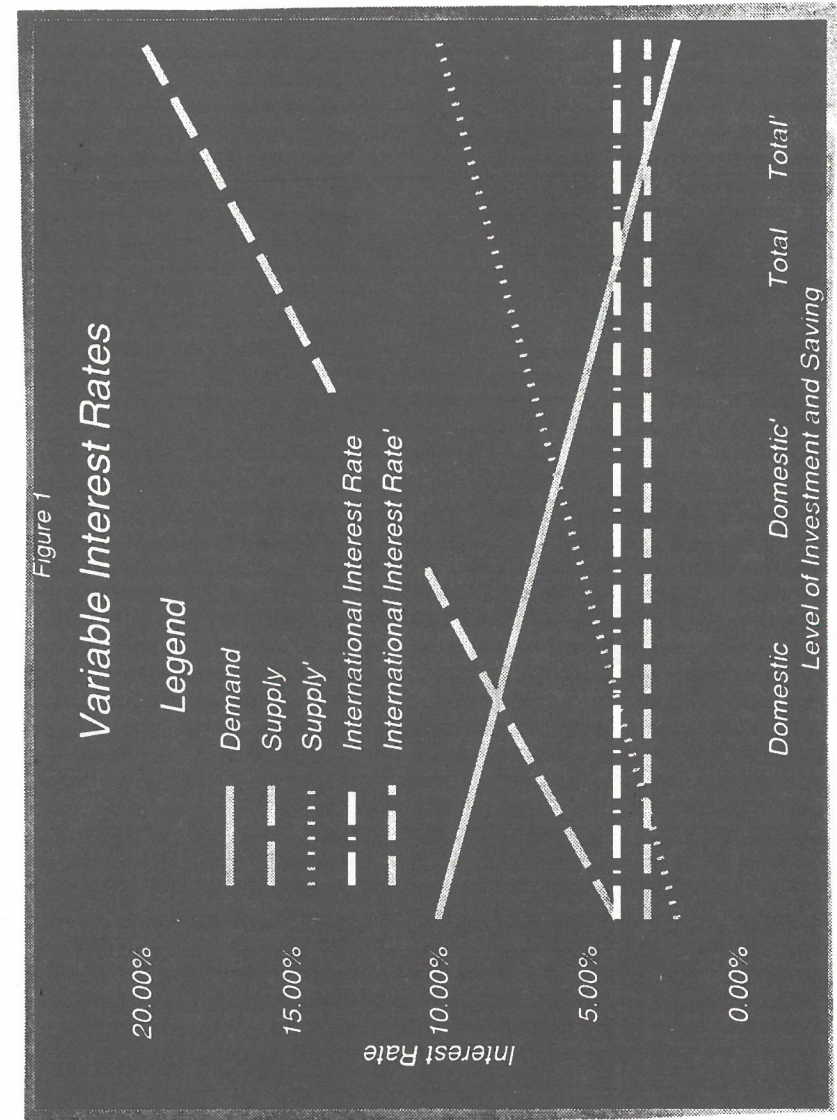
<sup>131</sup>Fellows, p. 32.



International Issues:

Figure 1:

The supply of money to be lent shifts right when the cost of saving is reduced by the implementation of a CIT. This results in a lower interest rate, which leads to increased domestic borrowing, investment and saving. If the United States can effect international interest rates, then the rate will shift down. International investment and saving in the United States will increase.



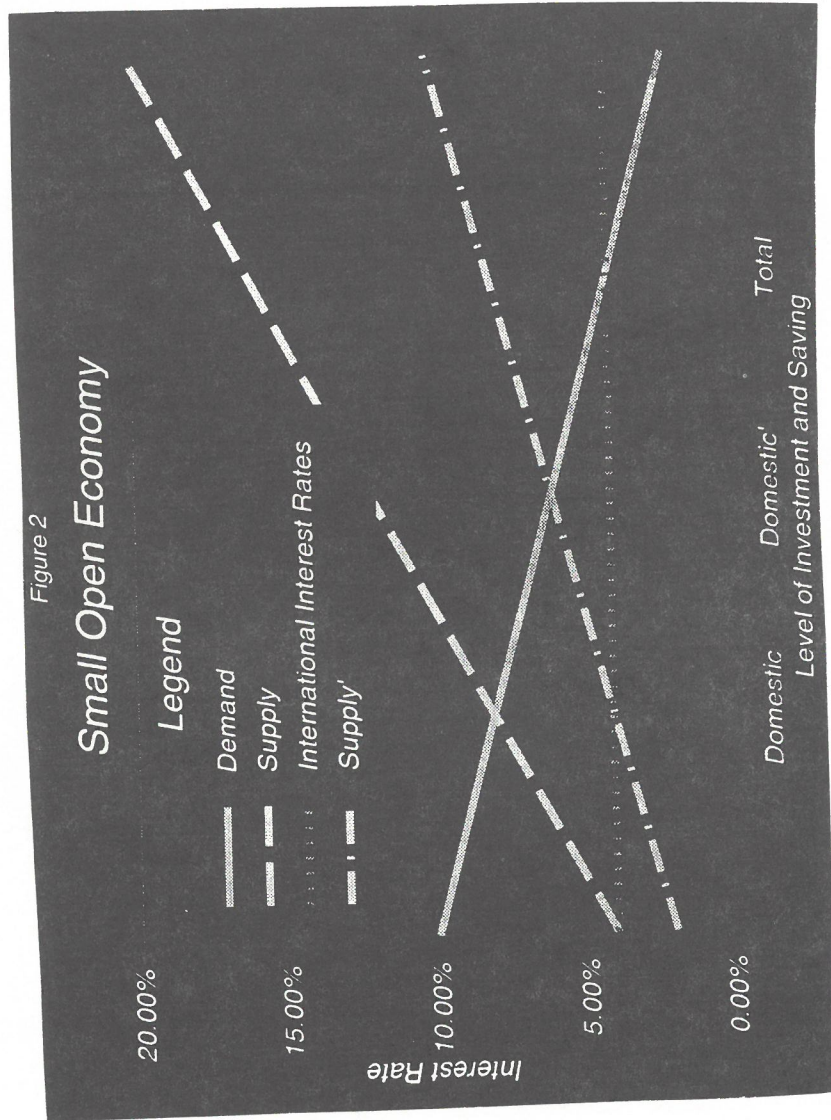


Figure 2:

If the United States is a small open economy, then it is a price-taker. It must accept the interest rate set internationally and has no effect on rates. A shift by the supply function would increase the amount of domestic investment; however, there would be a corresponding decrease in the amount of foreign investment. Total international investment and saving would remain constant.

If the United States is a price-taker, the implementation of a CIT might increase domestic saving and investment, but would have little effect on total investment and saving. Implicit in the following models is that the United States is not a price taker and can effect international interest rates.



## Excel Models:

Base Case:

Figure 3

The base case is an individual X who lives three years and earns \$1,000 in each of the first two years, assuming there are no taxes. In the third year X retires and earns only interest on past saving.

The marginal propensity to save of X is 0.333333. This means that X will save a third of his after tax income.

There are no taxes in the base case. The discount rate, the rate at which money put into savings accounts earns interest, is 10%.

In year two X receives income from wages and interest from savings. X saves a third of this total and consumes two thirds.

In year three X earns no wages, but spends the balance from the savings account and the interest earned in the third year. Only by having X spend all money made during his lifetime can the lifetime model be complete.

The top simulation represents an income tax, while the bottom represents a cash-flow CIT. Since there are no taxes, all entries are equal in both tables.

Year	Total Taxes 0		Income Tax		Include Boskin's interest elasticity of saving of		Effective Interest Rate	
	\$ \$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Discount Rate of	10%	Total Amount in Savings Account	10.00%
1	\$1,000	\$ -	\$ -	\$666.67	\$333.33	\$ -	\$ 333.33	
2	\$1,000	\$ -	\$ -	\$688.89	\$ 344.44	\$ -	\$ 677.78	
3	\$0	\$ -	\$ -	\$ 745.56	\$(745.56)	\$ -	\$ -	
MPS (normal) = 0.333333 Labor/income elasticity (male + female/2) 0.15								
Compute the Consumed-Income Tax needed to earn 0								
Here I assume that saving under the income tax will decrease by the .4.								
Consumed-Income Tax								
Year	Consumed-Income Rate of		Consumed-Income Rate of		Discount Rate of		Total Amount in	
	\$ \$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ \$ from Interest (Before Taxes)	Total Amount in Savings Account	
1	\$1,000	\$ -	\$ -	\$666.67	\$ 333.33	\$ -	\$ 333.33	
2	\$1,000	\$ -	\$ -	\$688.89	\$ 344.44	\$ -	\$ 677.78	
3	\$0	\$ -	\$ -	\$ 745.56	\$(745.56)	\$ -	\$ -	

Income Tax				Effective Interest Rate	
10%				9.00%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Saved in Year	Total Amount in Savings Account
1	\$885	\$ 98.50	\$ 98.50	\$591.00	\$ 295.50
2	\$885	\$ 101.45	\$ 209.80	\$608.73	\$ 599.86
3	\$0	\$ 6.00	\$ 236.78	\$ 653.85	\$ -
Present Value of Consumption = 0.333333				\$ 2,020	
MPS (normal) = 0.333333				Labor/Income elasticity (male + female/2)	0.15
Compute the Consumed-Income Tax needed to earn 236.7841					

Here I assume that saving under the income tax will decrease by the .4.

Consumed-Income Tax

Consumed-Income Tax				Discount Rate of	
11.188%				10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Saved in Year	Total Amount in Savings Account
1	\$883	\$ 66.12	\$ 66.12	\$591.00	\$ 326.12
2	\$883	\$ 68.10	\$ 140.84	\$608.73	\$ 665.12
3	\$0	\$ 81.85	\$ 236.78	\$ 648.78	\$ -
Present Value of Consumption = 2,034				\$ 2,034	

### Taxes Introduced:

Income Tax:

Figure 4

Next taxes were introduced. An income tax rate of 10% was chosen. The wages earned by X are lowered, because of the labor/income elasticity (find reference) of 0.15. The elasticity for males is 0.1 and for females, 0.2. Thus, I chose 0.15 as the elasticity for this simulation. This means that if taxes are 100%, X would work 15% less, earning only \$850 per year. Since the tax rate is 10%, X earns \$985.

X lowers his amount of work, because taxes lower the percentage of money brought home per hour worked. X would rather do something else than earn lower wages, depending on what the tax rate is.

Since X is earning \$985 in year 1, the income tax is:

$$\$985 * 10\% = \$98.50$$

Total taxes brought in for year 1 are also \$98.50

X now saves a third of the remaining after-tax income, based on his MPS of 0.333333. He consumes the rest.

In year 2, X again earns \$985, as well as 10% interest from the money in savings. Ten percent of this total is collected as taxes by the government's income tax. This amount is added to the taxes collected in year 1, multiplied by the discount rate, to obtain the total amount of taxes in present-value terms, \$236.78. X saves a third of after-tax wages and interest from savings. The rest is consumed. In the third year, only taxes on the interest from savings are collected, since X does not earn wages. The rest of the money in savings is consumed. Again, past taxes earn interest, so they are in present-value terms.

Cash-flow Consumed Income Tax:

Figure 4

At the bottom of Figure 4 is a simulation of a cash-flow CIT. It seeks now to keep consumption patterns the same as the income tax and earn the same amount in present-value taxes. From this one hopefully will be able to see which plan leaves more consumption for year 3 and more consumption in present value terms.

The taxes under a cash-flow CIT are on consumption only. Money saved is tax deductible until it is removed from the account. The savings account in the example is a qualified account.

The same amounts that were consumed each year under the income tax will be consumed under the CIT, so one can make a comparison. There is some question to me about whether the MPS of one third should be used instead. I believe that it should not, because this would indicate that X has not realized that the taxes on savings have not been paid yet. Assuming a knowledgeable individual, X would realize that the taxes must be paid later, and raise his MPS accordingly. Then, when the money is withdrawn later, X has enough to live on at the comfort level he initially desired when choosing a MPS under the income tax.

To simulate this sequence of thoughts by X, one need only set consumption per year equal to that of the income tax. The amount consumed is taxed at the CIT rate, yet to be determined. I set it to the income tax rate of 10% initially. X puts the rest of his income into the savings account.

Again, in year 2, the account earns interest and the consumption pattern equals that of the income tax.



In year 3, X spends the remaining income and balance of the account, which may be greater or less than that of the income tax.

Total taxes will be lower than under the income tax, if the CIT rate is set to 10%. The CIT rate must be raised so that total taxes equal the present value amount under the income tax. Once this rate has been found, one can compare consumption in the third year to see which system leaves X better off. The rate found in the example is 11.188%.

Notice that under a CIT, earnings in the first two years fall as a result of a higher tax on wages. Because of the labor/income elasticity, the amount earned falls. Because a CIT must have a higher tax rate on wages than the income tax, it causes more of a disincentive to work.

At the bottom of each tax is the present value of consumption. In each case, the effective interest rate is used to compute the present value of consumption. In the income tax case, the effective interest rate is 9%, because the tax on income from capital lowers it 10%. Thus, the consumption of year 1 increases 9% in each of the next two years. In this way, present value is computed. The difference in interest rates causes the present value of the CIT to be higher.

Introduce the interest elasticity of saving:

Figure 5

I next figured in the elasticity of saving to the effective interest rate as discussed by Michael Boskin<sup>132</sup>. Boskin found that the saving elasticity with respect to the interest rate is about +0.4. Income taxes reduce the rate of interest by subtracting taxes from the capital gains earned. Thus, the effective interest rate is lower. Using Boskin's findings, if the interest rate is lower, saving will be reduced by the .4 elasticity measure.

An income tax, by taxing income from saving, lowers the effective interest rate. If the discount rate is eliminated by an income tax of 100%, saving would fall 40%. In the example, the interest rate falls from 10% to 9% as a result of the 10% tax on interest. This is a 10% fall. Thus saving under the income tax must fall by  $.4 * .1 = .04 = 4\%$

Saving in each of the first two years falls by this percentage. Since this is forced consumption, the equations of the CIT need not be altered. This gives us a new tax total to reach under the CIT, however. The present value of taxes is \$236.41 now, lower than in Figure 4. The CIT rate is lowered until taxes equal \$236.41. The tax rate is 11.169%. The present value of consumption remains

Examples of prepayment and cash-flow methods:

Figure 6

The expected present value of the worker's lifetime tax base would be the same for either method of accounting, if X consumes the proceeds of his account during his lifetime and a higher tax rate on wages does not cause a reduction in work done. In the example, the labor/income elasticity equals zero. The amount spent in all three periods is the same for the income tax and the prepayment and cash-flow methods of consumed income tax.

The top example is the cash-flow tax. Next is the prepayment method, and last is the income tax. \$1,000 is the base earnings.

The prepayment method is computed by taxing all wage income immediately; however, income from capital and savings is not taxed. Thus, the tax rate needs to be greater than that of the income tax. The rate is considerably lower than the cash-flow method, though.

The consumption patterns of all three are the same.

<sup>132</sup>Boskin, p. 20.

Add interest elasticity of saving:

Figure 7

Once the interest elasticity of saving is set to 0.4, the income tax causes more to be consumed in the first two periods. The total consumed in the third period is less under the income tax. Total taxes have fallen from Figure 6 to \$240.00.

Add labor/income elasticity w/out interest elasticity of saving: Figure 8

Now the condition that taxes on wages lower the amount earned is added. Once the labor/income elasticity of 0.15 is added, the prepayment method proves superior, as the tax rate is less and causes less disincentive to work. Since the tax rate is higher under the cash-flow method, it causes more disincentive to work.

The present value of consumption figure is used again, and the prepayment method proves superior. X consumed more in the third period of the income tax example, however.

Use both elasticities:

Figure 9

Once the interest elasticity of saving is reintroduced, the difference between each of the CITs and the income tax in present value consumption becomes greater by a dollar. Total taxes in present value terms falls from \$236.78 to \$236.41. The cash-flow rate falls to 11.169% from 11.189%, while the prepayment rate falls from 10.413% to 10.396%. Even if one computes present-value of consumption using the discount rate of 10% instead of the effective rate of 9%, the present-value comes to \$2038.9, while the prepayment value is \$2,038.

Total Taxes 236.4108		Include Boskin's interest elasticity of saving of				Effective Interest Rate	
		Income Tax		Discount Rate of		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest (Before Taxes)	Total Amount in Savings Account
1	\$985	\$ 98.50	\$ 98.50	\$602.82	\$283.68	\$ -	\$ 283.68
2	\$985	\$ 101.34	\$ 209.69	\$620.18	\$ 291.85	\$ 28.37	\$ 575.53
3	\$0	\$ 5.76	\$ 236.41	\$ 627.33	\$(633.08)	\$ 57.55	\$ -
		Present Value of Consumption		\$ 2,020		Labor/income elasticity (male + female/2)	
		MPS (normal) =		0.333333		Labor/income elasticity needed to earn	
				Compute the Consumed-Income Tax needed to earn		236.4108	
Here I assume that saving under the income tax will decrease by the .4.							
		Consumed-Income Tax					
		Consumed-Income Rate of		Discount Rate of		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest	Total Amount in Savings Account
1	\$983	\$ 66.01	\$ 66.01	\$ 591.00	\$ 326.26	\$ -	\$ 326.26
2	\$983	\$ 67.99	\$ 140.60	\$ 608.73	\$ 339.15	\$ 32.63	\$ 665.42
3	\$0	\$ 81.75	\$ 236.41	\$ 650.21	\$(731.96)	\$ 66.54	\$ -
		Present Value of Consumption		\$ 2,035			



Total Taxes  
\$ 240.38  
Exclude Boskin's interest elasticity of saving  
0.00  
Show that the prepayment and cash-flow CITs are equal if Labor/Income elasticity = 0.

Compute the Consumed-Income Tax needed to earn \$ 240.38

#### Consumed-Income Tax

Cash-flow		Consumed-Income Rate of		Discount Rate of		10%		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 67.02	\$ 67.02	\$600.30	\$ 332.68	\$ -	\$ -	\$ 332.68	
2	\$1,000	\$ 66.03	\$ 142.76	\$618.29	\$ 345.85	\$ 37.14	\$ 37.14	\$ 678.62	
3	\$0	\$ 83.34	\$ 240.38	\$ 663.14	\$ (746.48)	\$ 75.77	\$ 75.77	\$ -	
Prepayment		Consumed-Income Rate of		Discount Rate of		10%		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 104.08	\$ 104.08	\$600.30	\$295.64	\$ -	\$ -	\$ 295.64	
2	\$1,000	\$ 104.08	\$ 218.53	\$618.29	\$ 307.21	\$ 30.76	\$ 30.76	\$ 602.85	
3	\$0	\$ -	\$ 240.38	\$ 663.14	\$ (663.14)	\$ 62.73	\$ 62.73	\$ -	
Income Tax of		10.000%		Discount Rate of		10%		9.00%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest (Before Taxes)	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 100.00	\$ 100.00	\$600.30	\$299.70	\$ -	\$ -	\$ 299.70	
2	\$1,000	\$ 103.00	\$ 213.00	\$618.29	\$ 308.66	\$ 29.97	\$ 29.97	\$ 608.36	
3	\$0	\$ 6.08	\$ 240.38	\$ 663.14	\$ (669.22)	\$ 60.84	\$ 60.84	\$ -	
MPS =		0.333							

Figure 6

Total Taxes  
\$ 240.00  
Include Boskin's interest elasticity of saving  
0.40  
Show that the prepayment and cash-flow CITs are equal if Labor/Income elasticity = 0.

Compute the Consumed-Income Tax needed to earn \$ 240.00  
Here I assume that saving under the income tax will decrease by the .4.  
Consumed-Income Tax

Cash-flow		Consumed-Income Rate of		Discount Rate of		10%		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 66.91	\$ 66.91	\$600.30	\$ 332.79	\$ -	\$ -	\$ 332.79	
2	\$1,000	\$ 68.91	\$ 142.51	\$618.29	\$ 346.07	\$ 33.28	\$ 33.28	\$ 676.87	
3	\$0	\$ 83.23	\$ 240.00	\$ 663.52	\$ (746.75)	\$ 67.89	\$ 67.89	\$ -	
Prepayment		Consumed-Income Rate of		Discount Rate of		10%		10%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 103.90	\$ 103.90	\$600.30	\$295.81	\$ -	\$ -	\$ 295.81	
2	\$1,000	\$ 103.80	\$ 218.18	\$618.29	\$ 307.40	\$ 29.58	\$ 29.58	\$ 603.20	
3	\$0	\$ -	\$ 240.00	\$ 663.52	\$ (663.52)	\$ 60.32	\$ 60.32	\$ -	
Income Tax of		10.380%		Discount Rate of		10%		9.00%	
Year	\$ Earned (Before Taxes)	Taxes (in year)	Total Taxes (earn interest)	Amount Spent	Amount Saved in Year	\$ from Interest (Before Taxes)	\$ from Interest	Total Amount in Savings Account	
1	\$1,000	\$ 100.00	\$ 100.00	\$612.29	\$287.71	\$ -	\$ -	\$ 287.71	
2	\$1,000	\$ 102.86	\$ 212.86	\$629.90	\$ 295.99	\$ 26.77	\$ 26.77	\$ 593.70	
3	\$0	\$ 5.84	\$ 240.00	\$ 636.23	\$ (642.07)	\$ 58.37	\$ 58.37	\$ -	
MPS =		0.333							

Figure 7

## Recommendations

Peterson's requirements for a new tax system can be reviewed now:

- (1) the tax should be simple;
- (2) it should be easily understood and administrable;  
The prepayment method CIT is easy to understand and simple. Income from wages is subject to tax. There would continue to be tax brackets. Borrowed money is taxed. Lent money is deductible. The recipient of cash gifts pays the tax.
- (3) it should be fair;  
If Congress does not introduce exceptions into the tax law, a CIT provides progressivity. Also, consumption is a fair basis for taxation.
- (4) it should minimize opportunities for tax avoidance;  
Under the prepayment method, the IRS could concentrate on people's reporting of their wage income. They would not have to worry about income from capital.
- (5) it should not discourage savings;  
Either CIT removes the disincentive to save introduced by the income tax.
- (6) it should be neutral with respect to the economic allocation of resources; As long as exceptions are not introduced into the tax law, allowing deductions for all investments provides neutrality.
- (7) it should enhance the country's position in a global economy.<sup>133</sup>  
If the United States can effect interest rates and is not a small open economy, then increasing domestic saving should increase overall investment in the United States.

## Conclusions

The debate over whether the tax base should be income or consumption is a difficult one to resolve. The simulations that I ran point out that the CIT most likely would increase domestic saving and investment. If the United States is not a small open economy, this would increase total investment also.

However, because the tax on wages would need to be higher under a consumed income tax, there would most likely be more of a disincentive to work under the CIT.

To make any sort of judgment about the income tax versus a CIT, one must weigh these two disincentives.

One cannot necessarily make a policy decision from the present-value consumption numbers. I think that there may be a comparison possible using the last year of my models. In the previous two years the consumption decisions were

Cash-flow				Consumed-Income Tax				Exclude Boskin's interest elasticity of saving			
Total Taxes \$ 236.78											
Labor/Income elasticity of											
0.15											



based on marginal propensities to save. The money left in the third period might indicate some level of advantage for the CIT; however, one cannot say definitively.

To truly make a decision, one must discover the respective utilities of the income tax and the two consumed-income taxes. If a researcher could design such a utility function, perhaps this debate could be solved.

The prepayment method CIT is probably superior to the cash flow method, because it requires a lower tax rate, reducing the work-leisure disincentive. The prepayment method also would not penalize a worker that invests and moves up an income bracket as a result of hard work. Under the prepayment method, the person would pay the tax at the bracket he is in when he made the investment.

Not covered in my simulations were the administrative costs associated with each tax policy. The income tax most likely would have higher administrative costs, due to the need to calculate depreciation and track income from capital.

The prepayment method would require only tracking the wage earnings of individuals. The income from capital would be exempt, and there would be no need for qualified accounts, since the taxpayer prepays the tax. Borrowing would be taxed under a CIT, and this would require a new framework. A CIT is inflation-proof since under both methods, income from capital is not taxed.

There is little doubt that the United States needs a new tax system. There are many improvements that would occur through a move to a comprehensive income tax.

The CIT appears to be superior to even the comprehensive tax, however. Administratively, it eliminates many hurdles. Economically, it increases present-value consumption and consumption in the last period of my simulations. The consumed-income tax certainly seems to be a worthwhile idea.

# **VOLUNTARY EXPORT RESTRAINTS: A DISGUISED PROTECTION COSTING ALL AMERICANS**

**CHOL-HO KIM**