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David A. Weisbach

Joseph Bankman

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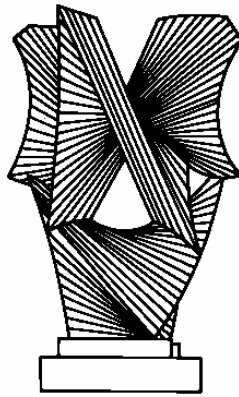
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*Joseph Bankman and David A. Weisbach*

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# **The Superiority of an Ideal Consumption Tax Over an Ideal Income Tax**

*Joseph Bankman and David A. Weisbach*

Stanford Law School and The University of Chicago Law School

August 3, 2005

## **Abstract**

This paper considers the arguments regarding the choice between an ideal income tax and an ideal consumption tax, focusing on an argument made by Atkinson and Stiglitz regarding neutral taxation of commodities. The argument shows that a properly designed consumption tax is Pareto superior to an income tax: it is more efficient and at least as good at redistribution. The major exception to the Atkinson and Stiglitz result is if individuals with equal wages have different propensities to save. In that event, a consumption tax may no longer be Pareto superior to an income tax. A consumption tax will continue, however, to be more desirable than an income tax. It will be strictly more efficient than an income tax, and under reasonable assumptions, better at redistributing from those who are better off to those who are worse off. This result holds true even if one heavily weights the welfare of the poor.

Send comments to: [d-weisbach@uchicago.edu](mailto:d-weisbach@uchicago.edu) or [jbankman@stanford.edu](mailto:jbankman@stanford.edu)

## **The Superiority of an Ideal Consumption Tax Over an Ideal Income Tax**

*Joseph Bankman\* and David A. Weisbach\*\**

August 3, 2005

Perhaps the single most important tax policy decision is the choice between an income tax and a consumption tax. The topic has been discussed and argued over since at least the time of Hobbes (1651) and Mill (1871) without apparent resolution.<sup>1</sup> Consumption and income taxes both represent substantial sources of revenue in all modern economies.

This paper considers the choice between an income tax and a consumption tax focusing on an argument made by Anthony Atkinson and Joseph Stiglitz in 1976 (AS 1976). AS 1976 shows that taxes should be imposed on all commodities at the same rate – taxes should be neutral. For reasons illustrated below, this conclusion implies that a consumption tax is superior to an income tax. AS 1976 has recently attracted substantial attention in the economics literature but, perhaps because the arguments are technical, it has yet to receive any attention in the legal literature.<sup>2</sup> Our task here is to explain the intuition behind AS 1976 and

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\*Ralph M Parsons Professor of Law and Business, Stanford Law School.

\*\*Walter J. Blum Professor of Law, The University of Chicago Law School. We thank Al Warren and participants at workshops at UCLA, Northwestern and Chicago for comments.

<sup>1</sup>The literature is immense. A sampling of cites includes Hobbes 1651, Mill 1871, Fisher 1906, Kaldor 1955, Andrews 1974, Graetz 1979, Warren 1980, Bradford 1980, Bradford 1984, Fried 1983, Auerbach and Kotlikoff, 1987, Shaviro 2000.

<sup>2</sup>There are some hints of the argument in the legal literature but no cites to the paper. For example, prior to the publication of AS 1976, Andrews 1974 at 1174-75 suggests a similar argument. Shaviro 2004 recently made an argument similar to AS 1976. The economics literature has also not fully absorbed their argument. For example, Gravelle 1994 makes arguments that were refuted in AS 1976.

AS 1976 has been cited in the legal literature with respect to a related but distinct consideration, which is whether legal rules should be used to redistribute. See,

explore how applicable the model is to the real world. Our conclusion is that ideal consumption taxes are superior to ideal income taxes.

We will generally compare only the ideal forms of income and consumption taxation. The actual choice of a tax system has to be based on how the system would be implemented, focusing on administrative and compliance costs. Neither an income tax nor a consumption tax would likely be implemented in their pure forms. Nevertheless, it is worth examining the ideal forms for two reasons. First, determining which ideal form is most desirable helps us design the actual systems and helps us understand the flaws of the actual systems – ideals matter in tax reform.

Second, the case for the income tax is likely to be strongest if the comparison is made between ideal forms. This is because the income taxes we have had for almost a century is much worse than the ideal income tax, and contains structural features that make reform difficult. For example, an ideal income tax would tax the change in the value of investments each year. Under existing law, the change in investment value is taxed only if it is “realized” in the form of sale or exchange. The so-called realization requirement is responsible for much of current tax-related complexity and distortion. Elimination of that requirement, however, raises difficult liquidity and valuation issues, and in part for those reasons has never been seriously considered. An ideal income tax would also measure gain and loss on an inflation-adjusted basis. Inflation adjustments, while possible, would be difficult and also have never been seriously considered. A consumption tax raises neither of these difficulties and most scholars believe that a consumption tax is easier to administer, and can be administered in purer form, than an income tax. By comparing ideal systems and ignoring administration costs, we are deliberately making the best possible case for the income tax. If a consumption tax is superior to an income tax even ignoring the major implementation problems of an income tax, it follows that it will be even more desirable once those problems are taken into account.

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for example, Kaplow & Shavell 1994.

Section I provides background on income and consumption taxes and reviews the most prominent arguments for an income tax. Section II reviews the AS 1976 argument, first showing how it applies when considering only the efficiency of the two tax bases, and then how it applies when we consider redistribution.

Section III considers how labor income and wealth are related and the extent to which the possibility of wealth without labor income affects the arguments. It shows that if correctly implemented, a consumption tax can tax such wealth and, therefore, such wealth should not affect the choice between the two tax bases.

Most of the paper assumes that the tax system, while progressive, taxes capital income at a flat rate. The system is progressive because the wealthy have more capital income, and because wages or consumption are taxed at a progressive rate. Section IV considers the possibility of graduated rates on capital income. This subject is essentially unanalyzed in the literature. Section IV argues that both consumption taxes and income taxes can have graduated rates on capital income if so desired so the issue is orthogonal to the central issue of this paper. Section IV also offers some initial thoughts on whether capital income should be taxed at graduated rates and concludes that it should not be.

Section V considers the difference between spenders and savings and whether savers are better off in a manner that would support a income tax. Section VI examines the argument that savings brings prestige, power, and security, and that the benefit of savings is more than future consumption. Section VII discusses the implicit assumptions of the AS 1976 model to get a better idea of what is driving their conclusions and whether they make sense. Section VIII concludes.

## **I. Background**

In this section, we review the definitions of income, consumption, and wage taxation and how they relate to one another. We then review the

basic arguments given in favor of income taxation. Most, if not all, of this material should be familiar to most readers, but we set it out here, very briefly, for completeness.<sup>3</sup>

A. *Basic Definitions and Relationships among the Tax Bases*

The only difference between an income tax and a consumption tax and hence the only issue governing the choice between the two tax systems is the taxation of the riskless return to savings. We derive this conclusion in several steps below, using the assumption that capital income is taxed at a flat rate. The conclusion also holds if capital income is taxed with increasing marginal rates, but we defer the discussion of more complex rate structures for Part IV below.<sup>4</sup>

An income tax is classically defined as a tax on consumption plus any change in savings during the taxable period. Haig 1921, Simons 1938. Expressed as a formula, a so-called Haig-Simons income tax is:

$$\text{Income} = \text{Consumption} + \Delta \text{Savings}$$

A consumption tax is then equal to an income tax minus the tax on the change in savings.

$$\text{Consumption} = \text{Income} - \Delta \text{Savings}$$

The key difference between an income tax and a consumption tax, therefore, is the tax on the return to savings or capital income. In a consumption tax, capital income is exempt while in an income tax it is taxed.<sup>5</sup>

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<sup>3</sup>For more detailed discussion of the issues, see \_\_\_.

<sup>4</sup>Other than in Part IV, we will assume that capital income is taxed at flat rates.

<sup>5</sup>As noted below, a consumption tax would, however, tax economic profits from capital investments.

A slightly more technical version of this characterization derives from Brown 1948. Consumption in a period is net receipts for the period less any amount saved – it is income minus savings. This means that a consumption tax can be implemented through a cash flow system, allowing a deduction for investments and taxing the entire amount received when an investment is sold. This cash flow system is equivalent to non-taxation of capital income because an immediate deduction for an investment and a tax on the receipts when sold is equivalent in present value terms to complete exemption of the return. Brown 1948. If we use the rate of return on the investment to compute present values, the present value of the tax in the future, when the investment is sold, is the same as the deduction when the investment is made. For example, if the tax rate is 30%, the value of deduction when the investment is made is 30% of the amount of the investment. The tax on the future receipts is 30% of those receipts. Because the present value of those receipts is the amount of the investment, the present value of the future tax is the present value of the value of the current deduction and, therefore, the value of the deduction and the cost of the future tax exactly offset.

Note that this implies that a consumption tax is the same as a tax on labor earnings. The reason is that on a going forward basis, there are two sources of consumption: earnings from labor (wages) and earnings from capital. If, in a consumption tax, capital income is not taxed, all that is left to tax is wages. We, therefore, use the terms consumption tax and wage tax interchangeably. There are significant differences between the two in actual implementation. For example, not all labor earnings are paid out as wages and a wage tax will not tax economic profits. Where these differences matter, we will use the appropriate term.

The analysis so far, although the received wisdom 20 or 30 years ago, is insufficiently nuanced. To get a better understanding of the differences in the tax bases, we need to more closely examine the nature of returns to capital. We can divide the return to capital investments into three components: pure, riskless, time value returns, returns to bearing risk, and economic profits.



In general, neither ideal income taxes nor ideal consumption taxes tax returns to risk bearing. This is clear in a consumption tax, which generally exempts returns from capital. It is less obvious in an income tax, which, on its face seems to tax returns to capital. Nevertheless, for ideal, Haig-Simons income taxes, this proposition is now well accepted.<sup>6</sup> The intuition is that income taxes reduce both the upside of winning bets and the downside of losing bets in equal amounts. Winnings are taxed and losses are deducted. The effect is to reduce the riskiness or variance of outcomes. Individuals can restore their pre-tax riskiness merely by increasing the size of their bets. Imagine a coin flip for \$100 subject to a 50% tax. Absent tax, the individual taking this bet would win or lose \$100. After tax, the individual would win or lose \$50. The individual need merely double the bet to \$200 to restore his pre-tax position.<sup>7</sup> In our existing tax system, individuals may not be able to do this because of various rules such as loss limitations (whether they can is unclear, see, e.g., Shuldiner draft), but in an ideal income tax the argument is straightforward and here we are comparing ideal systems.<sup>8</sup>

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<sup>6</sup>There is a long line of literature on this issue originating with Domar and Musgrave 1944. For relatively simple introductions, see Kaplow 1994, Weisbach, forthcoming.

<sup>7</sup>The individual will not be able to return to his precise pre-tax position if, due to a graduated rate structure, gains are taxed at a higher rate than losses. However, under plausible assumptions, the individual will still be able to offset most of the tax at little or no cost by increasing the riskiness of his portfolio..

<sup>8</sup>As noted in footnote \_\_, we are assuming here that capital income is taxed at a flat rate. If capital income is taxed under graduated rates, both income and consumption taxes will burden risk. See Section IV for a discussion.

Most income tax proponents seem to have thought that a pure income tax did tax returns to risk-bearing. The result that a Haig-Simons income tax does not tax returns to risk-bearing therefore comes as a surprise and as a disappointment. One response might be to reformulate an income tax in a way that does tax this return. Such a reformulation has not been done, is not likely to be easy, and very well may result in an unattractive tax system that no longer resembles an income tax. Until someone undertakes this task, we will take Haig-Simons taxation as the canonical form of a income tax and with it, the conclusion that income taxes do not tax returns to risk-bearing.

Both income and consumption taxes tax rents, or economic profits. Recall that if we think of a consumption tax as allowing an immediate deduction for investments and imposing a tax on the sale, we know that this is equivalent to no tax because the value of the immediate deduction is equal in present value terms to the cost of the future tax when the money is withdrawn. If the investment produces economic profits, however, the investment will grow at a rate greater than the (risk adjusted) rate of return. This means that the present value of the future tax will be greater than the value of the deduction when the investment is made. Thus, the claim made above that consumption taxes do not tax any returns to capital was inaccurate in a potentially important way: consumption taxes do tax profits, and profits may be major source of wealth. For similar reasons, income taxes tax profits. Individuals cannot merely alter their portfolios to offset the effect of a tax on profits like they can with respect to the tax on risk-bearing. Because both tax profits, the treatment of profits cannot be a reason for choosing between the two systems and we will, from here on out, ignore the possibility of profits.

This leaves the tax on the risk-free, time value return as the only difference between income and consumption taxes. Income taxes reduce this return by the tax rate while consumption taxes do not. The choice between income and consumption taxes, therefore, is whether it is desirable to tax the risk-free return to savings.

#### B. *Implementation of Income and Consumption Taxes*

Although we focus here on ideal systems rather than implementation issues, it is worth reviewing the basic methods by which income and consumption taxes can be imposed. There are two key observations. First, the implementation methods for income and consumption taxes are very similar, with the key difference being that consumption taxes do not need to track the timing of transactions as carefully as an income tax. Second, there is great flexibility in implementing a consumption tax, including flexibility to make it progressive. This flexibility is important to our (and AS 1976's) argument because for a consumption tax to be

preferred to an income tax, it must be sufficiently progressive.

We can break implementation down along two dimensions: whether the tax is imposed at the individual level or the business level, and whether the tax uses a cash flow system or a basis system. Both income and consumption taxes can be imposed at either level and through either a basis or cash flow system.

Begin with a retail sales tax on all consumption goods imposed directly on consumption purchases. This is a business level consumption tax. A VAT is just a complicated (and better) method of collecting a retail sales tax that reduces the possibilities for fraud by retailers. Effectively a VAT is a sales tax imposed at each level of production (i.e., extraction, manufacture, wholesale, retail) with a deduction for taxes paid at prior levels of production.

The major problem with a VAT is that it is imposed entirely at the business level so it cannot be readily tailored to take into account the circumstances of the individual consumer. An individual cash flow tax is a consumption tax imposed solely at the individual level. In such a tax, individuals would pay tax on the difference between receipts and investment outlays, the difference, by definition, being consumption. Such a tax can be progressive because higher amounts of consumption can be taxed at higher rates. Individual tax returns would look much like they do under an income tax except that individuals would deduct investment expenses rather than get basis.

We can equivalently use a wage tax because, as discussed above, a cash flow tax does not tax investment returns. If individuals only have two types of returns, returns to labor and returns to investments, we can achieve the same effect as a cash flow tax by merely taxing returns to labor. Wage taxes are likely to be very simple to impose, but they also present problems. In particular, they rely on individuals correctly labeling receipts as wages rather than returns to capital, and this will be highly manipulable. Bill Gates, for example, may pay himself low wages but

consume a great deal. A cash flow tax does not depend on this labeling: regardless of what Gates calls his receipts, when he uses them for consumption he will be taxed. In addition, wage taxes do not tax economic profits, unlike a cash flow tax. For these reasons, it is unlikely that we would want to rely solely on a wage tax. We use the term wage tax below merely for simplicity, with the understanding that an actual consumption tax is unlikely to rely solely on the taxation of wages.

Individual consumption taxes can also use a basis system. Rather than allowing an immediate deduction for investments, we can give investors basis. Basis would be increased each period by the risk-free rate of return and inflation so that when the basis is recovered, it has the same present value as an up-front deduction. A basis system will tend to be more complex than a cash flow system but may have certain advantages with respect to tax rate changes. (Bradford, date).

Finally, with respect to consumption taxes, we can use a mixed system, partially imposed at the business level and partially imposed at the individual level. The Hall-Rabushka Flat Tax and Bradford's X-tax are examples of this. These taxes are the equivalent of a VAT but with a deduction for wages (which would not normally be deductible) and a progressive wage tax at the individual level. These mixed systems attempt to combine the advantages of a VAT with the ability of a wage tax to be tailored to individual circumstances. These taxes and their income tax equivalents (see below) also tax wages at a progressive rate and capital at a flat rate.

Income taxes have essentially parallel implementation systems. Our current income tax uses a basis system: investors get basis in their investments and recover it when they realize gain. The investment that creates basis is made today but the basis is only recovered in the future, which means that the present value of the benefit of tax basis is less than its cost. This difference means that a basis system taxes the time value of money, as is required under an income tax. The Haig-Simons income tax, which we will take as the paradigmatic income tax, adds an extra layer on

top of the basis system by valuing assets at the end of each period and requiring a tax on the change in value. Periodic valuation is necessary because, if an investment is held over many periods, appreciation in early periods is not taxed until later periods under the pure realization system.

Income taxes can also be imposed through a cash-flow system<sup>9</sup> or, at the business level, through a VAT-like system<sup>10</sup>. Details of these systems are irrelevant for our purpose. The key point is the degree of flexibility in imposing consumption taxes.

C. *A Tax on the Return to Savings as a Non-Neutral Commodity Tax*

As noted, the difference between an income tax and a consumption tax is the tax on the risk-free return to savings. We can (and will) think of this tax as a non-neutral sales or commodity tax in the sense that it imposes different rates on different consumption choices. Although the tax on the return to savings imposes a very particular pattern of tax on consumption choices, by characterizing a tax on the return to savings as a non-neutral commodity tax, the choice between an income tax and consumption tax can be seen as part of the more general question of whether any uneven or non-neutral commodity tax is desirable.

To see why this is an apt description of a tax on the return to savings, consider an individual, Z, who earns \$100 in period one and is considering whether to spend the sum in years one or two. Assume arbitrarily that the pre-tax rate of interest is 5%. Absent taxes on interest income, Z could either consume \$100 of goods in period one or save the \$100, earn 5%, or \$5, and consume \$105 of goods in period two. The \$105 goods in period two have a present value to the individual of \$100. Assume, now, that the return to savings is taxed at a 40% rate, and so

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<sup>9</sup> Auerbach and Bradford [2002]

<sup>10</sup> Treasury [1992]

reduced to 3%. Z now must choose between consuming \$100 in period one or \$103 in period two. The reduction from \$105 to \$103 has the same effect as a sales tax of about 2% on period two consumption. If discount rates remain constant, the market value of available period two consumption drops to \$98.10.<sup>11</sup>

The effective tax rate levied on future-consumed goods increases as the time of consumption grows more distant. If, in the above example, consumption is deferred for three years, the tax reduces available consumption from \$116 to \$109 - the equivalent of a sales tax of 6.4%. After 30 years, the amount available is reduced from about \$430 to \$240. This is equivalent to a sales tax of about 80%. The choice between an income tax and a consumption tax can be restated as whether such a sales tax is desirable. As such, it is part of the general question of whether and when non-neutral commodity taxes are desirable.

#### D. *Arguments for an Income Tax*

There is a vast literature on the choice between an income tax and a consumption tax, split in its support of one or the other.<sup>12</sup> While there are numerous arguments on the issue, we believe that there are two broad reasons why many prefer an income tax to a consumption tax. The first is an efficiency argument, which concludes that whether a consumption tax is more efficient than an income tax depends on empirically unknowable or indeterminate facts and, therefore, there should be no presumption that one is more efficient than the other. The second is that an income tax is better at redistribution. Given that the efficiency effects of the choice are ambiguous and possibly unknowable but there are clear distributive gains, we should support an income tax.

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<sup>11</sup>The burden to Z of the sales tax would be reduced to the extent the tax is borne by borrowers; to the extent that occurs, the before-tax rate of return will rise. The incidence of the tax, however, does not change its characterization as a sales tax. Sales taxes may also be shifted between buyers and sellers.

<sup>12</sup>See note \_ for a partial list of papers.

The efficiency argument, which we will call the trade-off theory, compares the relative distortions of an income tax and a consumption tax. A consumption tax does not tax the return to savings. This means that savings decisions are undistorted and individuals choose the optimal amount to consume at each date. A consumption tax does, however, tax labor earnings, which means that decisions about how much to work are distorted. An income tax taxes the return to savings, which means that future consumption is relatively more expensive and savings decisions will be distorted. The potential advantage of an income tax, however, is that by taxing the returns to savings, the tax rate on labor earnings can be lower, so that work decisions are distorted less under an income tax than under a consumption tax. Whether a consumption tax or an income tax is more efficient depends on the relative elasticities of savings and work effort. As stated by one prominent economist,

The efficiency effects [of the choice between an income tax and a consumption tax] depends on assumptions about behavioral effects. If individuals are relatively unwilling to substitute consumption over time and relatively willing to substitute leisure for consumption of goods, then a significant tax on capital income would constitute part of an optimal tax system. These behavior effects are difficult to estimate empirically.

Gravelle 1994, 31.<sup>13</sup> This same argument is repeated in the most recently published public finance textbook, which is intended to summarize economists' basic understanding of these issues. Gruber 2005;

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<sup>13</sup>The trade-off theory bears a superficial resemblance to Ramsey-tax theory. Under Ramsey taxation, we should levy a tax on goods with low elasticity of demand because the quantities consumed are likely to change less when subject to taxation as compared to good with high elasticities, minimizing deadweight loss. Moreover, distortion rises with the square of tax rates which means that the tax base should be broad; the distortion from the first dollar of tax on one commodity is very likely to be smaller than the distortion from the nth dollar of tax on another commodity. The trade-off theory differs from Ramsey tax-theory because it compares elasticities of labor and savings rather than the elasticities of goods. The flaw in the trade-off theory is discussed in II.A., *infra*.

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The second reason for supporting an income tax is distributive: Income taxes are thought to have better distributive consequences than consumption taxes. One version of this argument is that failure to tax returns to savings leaves enormous pools of wealth untaxed, creating vast inequalities in our society. Much of that wealth is created because of general societal conditions such as property rights, an effective government, the legal system, educated workers, natural resources, and protection from invasions, conditions that have nothing to do with the fortunate (although also skilled and hard-working) individual who earns great wealth as a result. Society has a right to distribute that wealth as it sees fit and it is just and fair to use it to reduce inequality.<sup>15</sup>

The more technical version of this argument is that transferring a dollar from the wealthy to the poor increases welfare because the marginal utility of money for a wealthy person is likely to be lower than it is for a poor person.<sup>16</sup> If utility goes up with income from capital as well as income from labor, both should be used as a basis for redistributing. This would seem to be true – someone with a large trust fund is unlikely to value another dollar as much as someone working two jobs just to scrape by. Redistributing one dollar from the trust fund baby to the working poor is likely to increase overall welfare. Paris Hilton very likely has a much lower marginal utility of money than someone slaving in the salt mines 60 hours a week to support his family. Redistribution from Paris Hilton to

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<sup>14</sup>Gruber claims that “[g]iven the evidence that labor supply is fairly inelastic . . . most economists think efficiency would rise with a consumption tax that shifts the burden of taxation for savings to labor. Given the lack of evidence on the response of savings to its after-tax return, however, such a conclusion is only tentative.”

<sup>15</sup>Murphy and Nagel 2002; Holmes and Sunstein (1999), Warren 1980.

<sup>16</sup>This may not be true in every case. Some wealthy may crave additional wealth more than the poor. But given that we must make some assumption about utility, an assumption of declining marginal utility of wealth seems an unproblematic assumption.



the worker makes sense.

A related but distinct version of this argument is that wealth brings benefits beyond the value of future consumption. For example, wealth is said to bring security, prestige, and power. Some have argued that an only an income tax can tax this wealth and corresponding benefits, and therefore, redistribute in ways that even a highly progressive consumption tax cannot. Given the importance these commentators put on redistribution, they conclude that an income tax is desirable.

These arguments are incorrect. A consumption tax is strictly more efficient than an income tax and is equally good at redistribution. We explain why immediately below, first discussing the trade-off theory and then discussing redistribution. The “wealth as more than future consumption” argument is reserved for Part VI.

## **II. The AS 1976 Argument**

### *A. Efficiency*

AS 1976 shows that the trade-off theory of efficiency is incorrect. The reason is that the trade-off theory misses one of the effects of a tax on the return to savings. In particular, a tax on the return to savings, or any non-neutral commodity tax, has two effects. As widely noted, it distorts savings decisions, but in addition, *it distorts work effort*. The trade off theory misses this latter effect, the effect of a tax on savings on work effort. A tax on savings distorts work effort for the simple reason that it lowers the pay-off from work. Individuals who work today, planning on consuming in the future will be able to consume less in the future for a given hour of work exactly as if wages were taxed directly. Thus by ignoring the latter effect, trade-off theory gets the efficiency calculus

wrong.<sup>17</sup>

We illustrate this with an example that initially focuses on the choice between any two commodities and then on the choice of whether to save. The example uses an argument, which we will call the replicating tax argument. AS 1976 did not use the replicating tax argument, but it has since become standard in explaining the result.<sup>18</sup> The replicating tax argument shows that for any non-neutral commodity tax (including a tax on savings), we can devise a tax only on consumption or equivalently, wages, that raises the same revenue, but eliminates the distortion with respect to the choice of which commodities to consume (or when to consume them). The return to labor is actually increased. The replicating tax, therefore, is a Pareto improvement over the non-neutral commodity tax.

Consider a person (whom we will call “Middle” in the next section when we consider redistribution) who has wage income of \$50,000 and spends it on two goods, Prunes and Figs. Suppose we have a wage tax of 50% and a tax on figs of 50%, but no separate tax on prunes. Given these taxes, Middle has \$25,000 after paying wage taxes to spend on prunes and figs. Suppose Middle spends \$20,000 on prunes and \$5,000 on figs (consisting of \$2,500 on figs and \$2,500 in taxes on the figs).<sup>19</sup> Of the

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<sup>17</sup>Looking only at efficiency is, in an important sense, contrary to one of the key points of AS 1976. They argue that the Ramsey analysis is wrong because if we eliminate redistribution from the analysis, the most efficient tax is a head tax. Once redistribution is added back in, a wage tax best distinguishes among individuals on the basis of their ability. AS 1976 never considers the pure efficiency argument. The discussion in the text treats efficiency separately merely to give the spirit of the argument before moving on to the more complex case with redistribution.

<sup>18</sup>See Hylland and Zeckhauser 1979, Saez 2002, Kaplow 2004.

<sup>19</sup>We are assuming that the tax on figs is 50% of the total amount paid, including taxes. Alternatively, the tax could be stated on a tax exclusive basis, in which case we would assume that Middle spends \$3,333 on figs and pays taxes of \$1,667. It doesn't matter which as long as the numbers are all done consistently through the remainder of the example.

\$50,000 earned, he pays \$27,500 in taxes and gets \$22,500 in consumption for the labor effort. We may assume that the tax has also distorted Middle's choice of whether to eat figs or prunes; that while he still eat figs, he eats fewer figs than he would if they were not subject to the additional tax.

The replicating tax is a tax on only wage income that provides the government the same revenue as the non-neutral consumption tax. In our example, Middle pays \$27,500 in taxes and gets \$22,500 in consumption. The replicating tax would be a tax of \$27,500 on wages or a 55% tax. Middle will now have \$22,500 left after paying the wage tax and have the same amount available for consumption as before. However, Middle will be better off because he can choose how to spend his after-tax income more freely – his choice between prunes and figs is no longer distorted. The perceived value of the consumption available to him will increase. His return to labor actually rises as the tax on figs is replaced by a tax on wages. The replicating tax, therefore, is a Pareto improvement over the 50% wage/fig tax – Middle is better off and the fisc is equally well off.<sup>20</sup>

The key fact missed by the trade-off theory is that the tax on figs reduces Middle's labor effort. Assuming he wants to eat some figs,<sup>21</sup> Middle will know that each hour of work will produce fewer figs than without the tax. Work is correspondingly less rewarding just as if it were taxed directly. Moreover, the tax on figs is an inefficient tax on labor because in addition to paying the explicit tax, Middle will suffer an additional decline in welfare to the extent the tax has led him to substitute

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<sup>20</sup>There is an important and subtle difference between the adjustments to the tax schedule described here and that found in much of the literature, such as Kaplow 2004. The usual approach is to adjust the wage tax to hold utility constant and show that this raises more revenue than the alternative, non-neutral tax. We adjust the wage tax to keep revenue rather than utility constant. Our adjustment is based entirely on observable variable – the revenue raised at each wage level under the commodity tax. By basing the adjustment on observable variable, however, we give up flexibility in how the Pareto improvements are distributed.

<sup>21</sup>If Middle never consumes any figs, the tax on figs is a nullity.

prunes for his preferred good, figs. Replacing the tax on figs with a small increase in wage tax will eliminate this latter form of welfare loss. This result will hold anytime the tax causes Middle to substitute prunes for figs. He will pay an explicit tax and suffer an additional decline in welfare due the substitution way from his preferred good. The pure wage tax will always eliminate this latter form of welfare loss. We do not have to know anything about the so-called Ramsey factors – the relative elasticities of figs or prunes – to know that the replicating tax, a pure wage tax, is more efficient than the non-neutral tax.<sup>22</sup>

The use of prunes and figs in the example is obviously intended to hint at consumption in the present and the future. The argument is exactly the same regardless of whether the non-neutrality is between two commodities consumed today or between consumption today and in the future. As noted, a tax on the return to savings is like a sales tax that increases the cost of future consumption just like the tax on figs increases the cost of figs. The tax on future consumption (Figs) reduces the return to labor because the individual knows that each hour of effort produces fewer goods at the future date. The trade-off theory misses the effect of the tax on the return to savings on labor effort. Moreover, the tax on the return to savings is less efficient than a pure labor tax because in addition to raising revenue, it causes the individual to chose consumption today instead of his preferred good, consumption in the future. As with the prune/fig case, the result does not depend at all on the relative elasticity of savings and labor. A wage tax is more efficient even if labor income is highly elastic and savings highly inelastic.<sup>23</sup>

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<sup>22</sup> There are two (unrealistic) assumptions under which the wage tax will not be more efficient. First, if Middle is completely indifferent between prunes and figs he can costlessly avoid the tax on figs by giving up figs. The tax will not be inefficient – but it will raise no revenue. Second, if Middle’s demand for figs is completely inelastic and so he consumes as many figs as before, the tax is as efficient as a wage tax because it does not impose an additional welfare loss by causing Middle to give up a preferred good.

<sup>23</sup> Said another way, to have any force, the trade-off theory has to assume that the tax on figs or on future consumption does not effect labor effort. Instead, it only affects the choice between figs and prunes, future and present. Although the effect on labor

Note that the AS 1976 argument does not require us to view interest income as compensation for the pain of deferring consumption – it does not need to make equal utility arguments of the sort that have been addressed in some of the literature. See Gunn 1979, Kelman 1983. Instead, we need merely to view the interest rate as setting the price of goods to be consumed in the future and a tax on interest income as increasing that price. Given that a person saves (other than with respect to his last, marginal dollar of savings), he very much likes that price and is better off for taking it. Therefore, he is more than compensated by interest for the pain of deferring consumption. This fact, however, is entirely irrelevant, just as it is irrelevant that he likes the price of prunes and is better off for buying prunes at their going price and just as it is irrelevant that a tax on labor ignores the fact that wages compensate individuals for the costs of work.

The major caveat to the efficiency argument is the possibility that figs (or future consumption) are a relative complement to leisure (i.e., more of a complement to leisure than are prunes or present consumption).<sup>24</sup> If this is the case, making figs less attractive makes leisure less attractive. If leisure is less attractive, the labor tax will distort work effort less. Why not spend more hours at the office given that free time is no longer as pleasurable? A tax on figs in this case would be efficient. Alternatively, if figs are a relative substitute for leisure, a

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effort is relatively easy to miss, once it has been pointed out, it is hard to see a justification for such an assumption. Perhaps one can offer various psychological theories for why people misperceive the effect of various taxes, but the trade-off theory purports to apply classical economics and such an assumption is entirely unjustified within standard economics. A tax on future consumption reduces the value of work today and, therefore, has the same distorting effect as a direct tax on that work.

<sup>24</sup>The technical name for the assumption that neither commodity is a relative complement for leisure is weak separability. Under weak separability, an individual's utility function can be stated as a function of two variables, work effort and a function of commodities. That is utility is equal to  $U(w, v(c_i))$  where the  $w$  is work effort,  $c_i$  are the various commodities one can consume, and  $v$  is a subutility function that determines the utility from consumption.

subsidy for figs would be desirable. The same goes for consumption in the present and in the future. If future consumption is a relative complement for leisure, some tax on future consumption might be desirable. If future consumption is a relative substitute for leisure, a subsidy for future consumption might be desirable.

While arguing that future consumption is a relative complement for leisure is perhaps a way to support an income tax, it does not restore the trade-off theory. The elasticity of savings is still irrelevant. Moreover, there is little reason to believe that savings is a relative complement to leisure. Unlike the empirical quagmire of the trade-off theory where the elasticities could be any which way and proponents can cite studies that support various conclusions, there is no empirical or theoretical reason to believe that future consumption is a relative complement to leisure. Moreover, for the argument to support an income tax, it would have to be the case that the relative complementarity of future consumption with leisure increases as consumption gets more distant because the “sales tax” on future consumption is larger the further away the consumption. Indeed, once we consider relative complementarity with leisure, it is just as likely that future consumption should be subsidized as taxed.

More generally, while it is the case that a pure wage tax might be improved by taxing relative complements to leisure and subsidizing relative substitutes for leisure, what such taxes might look like is obscure. We would want to tax items that take a long time but are relatively inexpensive and subsidize short but expensive items. For example, we might want to tax long books and subsidize rock concerts. Similarly, we might want to tax food prepared at home and subsidize food eaten at restaurants, the opposite pattern from most VATs in the world today. See Iowerth and Whalley 2002, Kaplow 2004. Therefore, while the technical economics literature views the “relative complementarity problem” as important (see Deaton 1981), from a practical point of view, it has no obvious bearing on the choice between an income and consumption tax.

### B. *Redistribution*

We can now add redistribution to the analysis. The argument is straightforward given the efficiency analysis above. The efficiency analysis considered a single individual and showed that we can replace a non-neutral tax (such as a tax on savings) with a consumption or wage tax (the replicating tax) to make that individual better off. To add distribution to the analysis, we simply perform this same substitution of tax systems at each income level. Following the same argument, at each income level, individuals would be better off. The replicating tax, therefore, is a Pareto improvement over an income tax even when redistribution is taken into account. A wage or consumption tax, properly structured, is thus preferable to an income tax and this holds entirely without regard to our views on how much redistribution is appropriate.

We can analogize the argument for a tax on savings to the argument for a luxury tax. The argument for a luxury tax is that only the rich can afford to save or to purchase luxuries. A tax on luxuries, therefore, seems to have good distributive properties which might outweigh any inefficiencies. Notwithstanding the possible distributive properties, however, a luxury tax is not desirable. For each income class, we can determine their luxury purchases and replace the luxury tax with the replicating wage tax. For example, suppose that those who earn between \$30,000 and \$50,000, \$50,000 and \$100,000, \$100,000 and \$200,000, and so forth, tend to purchase luxuries with a given percent of their earnings, the percentage going up with income. As illustrated above, we can adjust the tax on their labor earnings to replicate the effect of the luxury tax. With such an adjustment, each income class will pay the same total tax. Distribution, therefore, is held constant, but the overall system is more efficient. Indeed, the efficiency gains can be traded off for more redistribution, if so desired. If the gains from eliminating the luxury tax are used to create more redistribution, the more one favors redistribution, the more one should be *against* a luxury tax.

The identical argument applies to a tax on the return to savings. The

argument for a tax on the return to savings is that the rich save more than the poor, so savings is like a luxury good. On the surface, taxing it seems to have good distributive properties, but for the same reason that the luxury tax is undesirable, a tax on savings is undesirable.

To fill this in, we expand the example used in the prior section. Suppose there are three types of individuals in society: poor, middle, and rich, with middle the same as above. They consume two types of commodities, figs and prunes. The rich consume more figs and fewer prunes (relative to their total) than do the middle class, and similarly for the middle class compared to the poor.

Suppose that we have a flat-rate wage tax of 50% and a tax on figs of 50%, the tax on figs but not prunes being justified on the theory that the rich consume relatively more figs, so such a tax is progressive. We use a flat rate wage tax here for illustration, but the wage tax could have any structure and the argument would still work.<sup>25</sup> Moreover, the replicating tax we use is a progressive wage tax, but given the equivalence between wage taxes and consumption taxes in the absence of economic profits, we could also have used a progressive consumption. We use a wage tax merely because it simplifies the presentation. Suppose that given these taxes, incomes and consumption amounts are as follows:

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<sup>25</sup>Kaplow 2004 demonstrates this formally.



	Poor	Middle	Rich
Pre-tax wage income	\$25,000	\$50,000	\$100,000
Wage taxes (50% rate)	\$12,500	\$25,000	\$50,000
After-tax wages	\$12,500	\$25,000	\$50,000
Prune consumption	\$12,500	\$20,000	\$25,000
Fig consumption (including tax)	\$0	\$5,000	\$25,000
Fig tax	\$0	\$2,500	\$12,500
Total taxes paid	\$12,500	\$27,500	\$62,500
Taxes as a percent of wages	50%	55%	62.5%

In the argument on efficiency above, we replaced Middle's wage/fig combination tax with a wage tax that produced the same total taxes. We make the same adjustment here except that we do so for each type of individual separately. Therefore, we eliminate the combination wage/fig tax and replace it with a new, more progressive wage tax with rates of 50% on Poor, 55% on Middle, and 62.5% on Rich. This tax is a Pareto improvement over the wage/fig combination tax.

As in the case with only one individual, under the new structure, both Middle and Rich are better off. (Poor is neutral rather than better off because he did not consume figs.) Given the tax on figs and not prunes, Middle and Rich presumably reduced their figs consumption to an amount lower than they desire. The new tax structure gets rid of this distortion, allowing them to make better consumption decisions (more figs, less prunes). Since Middle and Rich pay the same amount of tax but have more attractive consumption choices, their return to labor has increased.

Redistribution is constant because each individual pays the same tax under the replicating wage tax as in the wage/fig tax structure. If each individual pays the same tax, we have replicated the distributive effects of a tax on figs with a tax on wages. If Middle and Rich respond to the increased return to labor by increasing their labor supply, there is more money available for redistribution.<sup>26</sup>

Now translate Prunes into Present consumption and Figs into Future consumption (savings). The fig tax becomes the tax on interest income. The argument that the tax on interest income is undesirable is identical to the argument that the tax on figs is undesirable. The tax on interest income may redistribute from the rich to the poor, but we can achieve equal redistribution through a more progressive tax on labor income that does not distort savings decisions. Everyone would be better off.

Note that the argument does not depend on the relative degree of inequality in our society or our preferences for redistribution. Therefore, the recent increases in inequality have no bearing on the choice between an income tax and a consumption tax. Similarly, one's views on the appropriate extent of redistribution have no effect on the argument. Even if we believe in substantial redistribution, a consumption tax remains superior. In fact, as indicated above with respect to a luxury tax, the more we prefer redistribution the more we might want a consumption tax because the Pareto advantages can be used to redistribute more rather than to increase efficiency.

Note also, the argument does not depend on the usual arguments for taxing consumption. For example, it does not matter what one thinks about the alleged unfairness of taxing income twice, once when it is earned and once when it is invested and earns interest. Mill 1871. Similarly, it does not rely on common pool arguments, (Hobbes 1651),

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<sup>26</sup> Whether the new structure increases work effort depends on the relative strengths of the substitution and income effects.

equal sacrifice ideas (Bradford 1980); nor, as noted above, does it depend on the nature of interest income as compensation for the pain of deferral or as rents (Kelman 1983).

The key assumption in the argument, one we suspect may be counter-intuitive to many readers, is that a consumption tax can be as redistributive as an income tax. There are two reasons why we might think consumption taxes cannot redistribute as well as income taxes. First, the model has no inherited wealth or wealth created prior to transition to a consumption tax. Trust fund kids may have relatively little labor income, so adjusting the tax on their labor income to substitute for the tax on their wealth only seems to help these idle rich. The AS 1976 argument instead assumes instead that individuals work to earn various amounts of money, some of which is saved. In the real world, this seems not to be the case.

Second, we have assumed that taxing earnings is an effective substitute for taxing savings. Individuals with the same amount of earnings, however, may save different amounts. Eliminating the tax on savings and replacing it with a higher tax on earnings will benefit individuals with a given level of earnings who save a lot at the expense of individuals with the same earnings who save little. Depending on our views about this type of redistribution, we might support an income tax. We might, for example, believe that an individual with the same earnings as others but higher wealth (because he saved more) is better off and should be taxed at a higher rate. This might be because wealth (consumption in the future) brings more utility than early consumption. It might alternatively be because wealth brings benefits independent of consumption. (Note that we do not mention profits here. The super-normal returns of some individuals are taxed under both systems. Much of the intuition that consumption taxes are insufficiently redistributive

may come from the erroneous view that they do not tax profits.)<sup>27</sup>

If a consumption tax cannot redistribute as well as an income tax, because of these assumptions or others, the AS 1976 argument fails. A consumption tax would still be more efficient than an income tax but this efficiency benefit would have to be balanced with the redistributive gains from an income tax. In the next two sections, we consider this issue in more depth.

### **III. Wealth without Labor Income**

The model shows that the distributive effects of a non-neutral tax on a commodity, such as firs, luxuries, or consumption in the future, can be replicated with a tax on labor income. The procedure we used above was is to increase the tax on labor income by the amount each individuals bears of the tax on the commodity. To make this adjustment in the manner demonstrated, individuals must have labor income to be taxed. Many wealthy individuals, however, appear to have little or no labor income, making the envisioned adjustment problematic. For a wealthy retiree, or a trust-fund baby, eliminating the tax on savings and replacing it with a more progressive wage tax would seem to be manna from heaven. Both benefit from the elimination of tax on investment income and neither have significant amounts of wage income. Similarly, Bill Gates pays himself a very small salary. Instead, he takes most of his earnings as capital gains on the sale of Microsoft stock. There is no adjustment to the wage tax that would offset the benefits to Gates of eliminating the tax on capital. We will argue that these sort of examples are misleading and the intuition behind the examples wrong. If the consumption/wage tax is properly

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<sup>27</sup> Another possibility that we suspect is in the back (or front) of the minds of many supporters of an income tax is that a consumption tax would, in reality, not end up being as progressive as an income tax. Kelman (1983), p. 679, for example, makes this explicit. We are not sure why this would be true. If we were going to consider political outcomes, we would also have to consider the long-term reluctance of the political branches to fully tax capital income under an income tax. In any event, this consideration seems irrelevant to the comparison of ideal income and consumption taxes.

structured and understood, these examples pose no problems for the AS 1976 analysis.

The solution lies in the distinction between a wage tax and a consumption tax. So far we have been treating them as identical and most often using the term wage tax for both. As noted, however, there are important differences and the problems highlighted above are problems with wage taxes, not consumption taxes. By using a properly structured “replicating consumption tax,” we can eliminate the problems of apparent wealth without labor income.

To see the difference, compare a flat rate wage tax and a flat rate retail sales tax on all goods and services (a consumption tax). The wage tax is imposed when wages are earned. There is no further tax down the road when the earnings are used to purchase consumption. A retail sales tax is not imposed when wages are earned. Instead, taxes are imposed only when the individual purchases consumption goods, often many years after the wages are earned. One might say loosely that a wage tax is *ex ante* while a retail sales tax is *ex post*. In fact, most consumption taxes are largely *ex post*. The two most likely forms of progressive *ex post* consumption taxes to replace the income tax are the Flat Tax or X-tax,<sup>28</sup> and the personal cash flow tax.

Consider the individual who has substantial labor income that is incorrectly labeled as capital income. This is the Bill Gates problem. He did not make a big investment in Microsoft. Instead, most of his net worth comes from his labor. Nevertheless, most of his income appears to come from capital – in the form of dividends or stock sales. A wage tax will not pick up this income. An *ex post* consumption tax, however, will tax this income to the extent it is really attributable to his labor. The reason is that a consumption tax ignores the labels put on earnings because the

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<sup>28</sup>As noted, the Flat Tax or X-tax is an *ex post* tax at the business level and a wage tax at the individual level. It would be an *ex post* tax for the purposes of dealing with wealth attributable to Gates’ labor in Microsoft, since it would tax the distribution

tax is not imposed directly on earnings. Instead, a tax is imposed when the earnings are spent and the source of the earnings is irrelevant. Therefore, to the extent that Gates's stock value reflects his labor income, it is taxed under a properly structured consumption tax.<sup>29</sup> The hidden labor problem can readily be solved.

The wealthy retiree problem can also be solved with an ex post consumption tax. She benefits from the elimination of tax on capital but we cannot go back and levy a more progressive tax on her wages. Under an ex post consumption tax, we tax her consumption when it occurs.<sup>30</sup>

The retiree problem is really one of transition to a consumption tax. Had a consumption tax been imposed all along, there would be no issue. Either the retiree would have paid a progressive wage tax when she earned the money, or she would have not paid any tax on wages that were used to fund deferred consumption until the time of that consumption, and then would be taxed on that consumption. The retiree problem comes about because the retirees earned and saved under an income tax. There is a large literature discussing this transition issue. Instead of reviewing that literature, we make three points.

First, the comparison between the ideal forms of an income tax and a consumption tax should be made as if each had always been in place. The goal is to find out which system is more desirable. If we assume that one system or the other is already in place, it biases the argument toward

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<sup>29</sup>One way to conceptualize this is that under a cash flow tax, Gates gets no deduction for his labor effort so to the extent gains on his stock are due to labor effort, there was no earlier deduction for an investment that offsets that tax on the sale.

In the flat-tax or X-tax, taxation does not necessarily occur at the time of consumption but instead occurs at the time cash is distributed from Microsoft. This should have the same present value effect on Gate's wealth.

<sup>30</sup>The operation of a Flat Tax or X-tax is a bit more complicated, but, as noted in note \_\_\_, yields the same net present value result.

the status quo because transition in either direction (from income to consumption or consumption to income) is likely to be difficult. Rather than assume a status quo, we should instead determine which base is preferable writing from a blank slate.<sup>31</sup> If it turns out one base is preferable but we currently use the other base, we can then determine whether the transition costs are worth the benefit, but the first task is to determine which is preferable. Said another way, it is quite a different thing to believe that an income tax is desirable than to believe that a consumption tax is desirable but we face a serious transition problem. Research agendas would shift from determining how to perfect the income tax to how to transition out of it.

Second, it is not clear that the presence of retiree wealth makes a transition to a consumption tax more or less desirable. Consider, for example, the adoption of either the Flat Tax, the X-tax or a cash flow consumption tax.. Because retirees have already been taxed on the wages and investment income that produced their current wealth, it might seem unfair to tax that wealth when consumed. On the other hand, taxation of retiree consumption might produce efficiency gains that could be used to fund lower overall rates.<sup>32</sup>

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<sup>31</sup>In fact, it would be a bad idea even if we were to assume a status quo to assume that it is the income tax. Although the U.S. federal government currently relies to some extent on a version of an income tax, it also relies significantly on a wage tax. Moreover, other governments, states and foreign, rely heavily on consumption taxes. An answer that income taxes are more desirable would raise the issue of transition from a consumption tax to an income tax.

<sup>32</sup>The efficiency gains would come about because the retirees had already worked and saved and therefore an extra level of tax on their wealth would not distort their behavior. In contrast, known ex ante (such as a wage or consumption tax after transition) would affect work effort and so produce efficiency costs. However, some or all (or more than all) of these gains might be lost if the imposition of the extra tax caused taxpayers in the future to worry that the government might similarly impose an extra tax on their work effort, as well. There might be additional efficiency losses if the extra tax was anticipated because holders of soon-to-be-taxed wealth could avoid the tax by consuming. See \_\_\_\_\_

Finally, the transition problem is not inherent to the choice between a consumption tax and a wage tax. Instead, it is one of the effects of switching between different methods of collecting tax. See Shaviro 2000 for an extensive discussion.

The case of the trust-fund baby is roughly parallel to that of the retiree. Under an ex post consumption tax, we can get at her wealth when it is consumed. Fundamentally, though, the problem is one of transition. Had a progressive wage-tax been in place when the money used to fund the trust was earned, her donor would have had less to invest, and the trust-fund baby would have less to now spend. In that event, the tax due from her trust would have been “pre-paid” by the donor<sup>33</sup>. Alternatively, had an ex post consumption tax been in place when the money was earned, the donor would not have been taxed on the wages that were used to fund the trust, and the income from the investment would be taxed at the time of consumption.

#### **IV. Graduated Marginal Taxes on Investment Income**

The income tax base does not require any particular rate structure: it may be either graduated or flat. The same is true with respect the consumption tax base. As noted, the two taxes differ in their treatment of investment income and our comparisons thus far have assumed that under an income tax, investment income is taxed at a flat rate. The tax on investment income disproportionately burdens high wage earners, not because that income itself is taxed at a progressive rate but because high wage-earners save more and have more of that income. The assumption that the income tax on investment income is flat is supported by many provisions of current law, but is obviously contradicted by other

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<sup>33</sup>If the rate structure is progressive, then the tax paid under a progressive wage tax may be greater or less than the tax paid under an ex post consumption tax, since the taxes will be paid by different persons in different years subject (perhaps) to different rates.



provisions.<sup>34</sup> An alternative assumption is that under an income tax, investment income should be taxed under a graduated rate structure, usually assumed to be increasing marginal rates. In that case, as investment income grows, the rate at which it is taxed increases.

There is very little, if any, literature, analyzing the effects of taxing capital income at graduated rates. The literature on optimal progressivity analyzes only wage taxes.<sup>35</sup> Mirrlees 1971. Arguments in favor of an income tax because of the distributive effect of taxing capital income are not explicit about the rate structure to be imposed on capital income and usually discuss progressivity arising solely because of the fact of taxing capital income. See, e.g., Gravelle 1994; Gruber 2005. Given the lack of prior analysis of the issue and the complexity of the problem, we limit ourselves to two points. First, we argue that the issue is orthogonal to the choice between income and consumption taxes because both types of taxes can equally impose graduated rates on the returns to risk taking, which, as we will argue, is the relevant dimension. Second, we will offer some preliminary analysis of the effects of imposing graduated rates on capital income and conclude that it is unlikely to be desirable. Our views on the second point are preliminary but the first point alone should be sufficient for purposes of this paper.

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<sup>34</sup> The current rate structure is progressive, on capital as well as other sources of income, so that, over certain ranges, additional income is taxed at higher rates. On the other hand, many individuals are already at the maximum rates and so will face a flat rate on investment income; this is particularly true with respect to investments that produce dividend income and capital gain, where the maximum rate is reached at relatively low levels of income. Many corporate investors are also in the maximum rate with respect to investments.

<sup>35</sup> Moreover, the problem of graduated rates on capital income is distinct from that with respect to labor income so we cannot apply intuitions from that literature to capital income. The optimal labor income tax problem is centered on creating taxes that cause individuals to reveal their true wage rates. The problem is one of mechanism design. The problem of the optimal rate structure on capital income can be seen as an insurance problem, reducing the harms of losing risky bets.

To see that the issue is unrelated to the choice between income and consumption taxes, consider first, the treatment of the riskless return under a rate structure with increasing marginal rates. The total tax on investment income is now comprised of a pure time value of money tax and a supplemental tax due to the rate increase. The result is a higher and more inefficient tax on capital income, as can be seen using the same replicating tax argument made above.

For example, a wage-earner in the 50% bracket who realizes \$50 of interest income on a \$1000 investment finds her return reduced to \$25. If the investment income is taxed under a progressive rate structure and pushes the individual to a 60% bracket, the return is reduced to \$20. A replicating consumption tax can achieve the same distributional effect without reducing the return to capital. Therefore, as in the main case above, replacing the income tax with one of these taxes will increase welfare without affecting the distribution of the tax burden among different wage or consumption classes. Indeed, since the tax on capital has now risen, the relative desirability of those forms of consumption tax increases.<sup>36</sup>

The only possible argument, therefore, for a graduated tax on capital income is with respect to risky returns. Both income and consumption taxes, however, can equally use graduated taxes on risky returns. For example, a cash flow consumption tax can use graduated rates so that if an individual wins a bet, she is taxed at a higher rate than if she loses the bet. McCaffery 2005 advocates for a consumption tax of this sort. Thus, regardless of one's views on graduated taxes on risky returns, they should not affect the choice between an income tax and a consumption tax.

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<sup>36</sup> Those forms of tax also have the added advantage of measuring wealth on an ex ante basis, so as to levy equal present value taxes on equal present value wealth. From this perspective, giving up the progressivity-related tax increase should be not troublesome, because, in applying that tax, wealth has been mismeasured. The wage-earner who, presented with a choice of saving or spending, chooses to save is not wealthier and should not pay a higher tax on her future consumption. See, however, \_\_\_\_.

Although our analysis is still preliminary,<sup>37</sup> it seems unlikely that graduated taxes on risky returns would be desirable. The motivation for such a rate structure is that risky outcomes are a matter of luck rather than effort, and it is appropriate to reduce or eliminate differences in outcomes due purely to good and bad luck. Sen [1970; 141-146], Diamond [1967], Harsanyi [1953; 312-314].

An analysis of whether or how to reduce differences in lucky outcomes must begin by asking why we have these differences. If individuals are optimally diversified, there should be no such differences – everyone would have the same portfolio. Individuals may not be fully diversified for a variety of reasons. They might, for example, hold a concentrated ownership in a small business that they cannot sell at a fair price because of a lemons market or adverse selection. Alternatively, they might hold a concentrated ownership in a business because of moral hazard problems. That is, it might be efficient to hold a concentrated position to improve incentives. If the problem is adverse selection, government provided reduction in risk might be optimal but if the problem is moral hazard, it would not. Other individuals might not be diversified because of transactions costs, in which case we might ask whether the additional risk reduction provided through the tax system has lower transactions costs than the additional risk reduction available in the market.

Suppose that we conclude that, on balance, it is desirable to reduce differences in outcomes due to luck. It is not clear, in such a case, that increasing graduated rates would be desirable. Consider as a baseline, the case where there are no behavioral responses to the tax system and, therefore, we want to entirely eliminate differences due solely to luck. To have a concrete example, suppose two identical individuals each have \$100 which they invest in a risky asset. Suppose that the asset will pay

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<sup>37</sup> Our analysis does not, for example, consider revenue constraints and general equilibrium effects. A more complete analysis would likely be based on the optimal insurance contract literature because the social goal in this case would be very much like the goals of private insurance contracts.

either \$120 or \$90 with equal probability. To keep the example simple, suppose that the payoff is instantaneous.

To eliminate differences in outcomes, we would give each individual the expected value of the bet, or \$105. The tax structure that would achieve this has *decreasing* marginal rates. The loser would have to be able to deduct his loss at a rate of 150% and the winner would pay taxes on his gains of 75%.<sup>38</sup> The intuition for this result is that if one loses money, higher tax rates are better.<sup>39</sup>

The analysis is more complex once we allow behavioral changes and, therefore, must consider efficiency effects. Complete elimination of differences in this case is unlikely to be optimal because it would effect incentives to take risk. Moreover, portfolio shifts in response to the tax on risk can have counter-intuitive effects.

Consider the same bet, a \$100 bet that pays either \$120 or \$90 and suppose that we are considering imposing three different rate structures: a flat 50% rate, increasing marginal rates of 40% and 60%, and decreasing marginal rates of 60% and 40%. We know with a flat rate structure of 50%, we can think of individuals as borrowing and doubling their bets to \$200. After paying taxes and paying back the loan, they will be left in the same position as if there were no-tax, having either \$90 or \$120. A flat rate structure does not reduce differences in outcomes due to risk.

Suppose we impose increasing marginal rates. Individuals making

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<sup>38</sup>An alternative rate structure that gives the same result would be a 100% tax on all returns and a demogrant of \$15 to each individual. This, however, is a flat structure, not an increasing marginal rate structure.

<sup>39</sup>Consider loss limitations. They create increasing marginal rates because losers, facing disallowance of loss deductions, effectively face a marginal rate of zero. Winners face a positive marginal rate. Loss restrictions are thought to hurt losers, illustrating that high rather than low marginal rates on those who lose bets may be more desirable.

the bet will not know the rate at which the payoff will be taxed, so they will not know how to adjust their portfolios. There are any number of possibilities, but consider three. First, they may adjust their portfolio using the tax rate on losses or 40%. Winners would find that they had not increased their bets enough to offset the 60% tax on their winnings and would be left with only \$113 after all is said and done.<sup>40</sup> Losers would have correctly adjusted their portfolio and would be left with \$90. In this case, the tax has reduced the difference in outcomes.

Second, they may adjust their portfolios based on the gain rate, or 60%. Winners, in this case, would have made the correct adjustment and be left with \$120. Losers, however, would have adjusted their portfolios counting on deducting losses at 60% but only be able to deduct them at 40%. Having increased the size of a losing bet and then not getting to deduct the loss at the higher tax rate, they would be worse off than without taxes, ending up with only \$85.<sup>41</sup> Increasing marginal rates, in this case would increase differences in outcomes, the opposite of the desired effect. Finally, they may adjust somewhere in the middle, say at 50%. In this case, winners end up with only \$116, worse off by \$4. Losers, however, also worse off than without taxes, losing \$2 and ending up with \$88. A flat rate structure Pareto dominates this case. Note, however, that the various cases leave the government with a different amount of money (\$7 in the case of adjustments to a 60% rate, \$5 for a 40% rate, and \$6 for a 50% rate). To make them comparable we would have to adjust the rate structure or refund some of the tax revenue. Nevertheless, the analysis gives a basic indication of the likely directions of the effects.

The result is the opposite with decreasing marginal rates. If they

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<sup>40</sup>They increase their bet by  $1/(1-t)$  or 166.67% in our case. If they win, the \$166.67 turns into \$200. They have gain of \$33.33 and pay taxes of \$20. After paying taxes and paying back \$66.67, they are left with \$113.

<sup>41</sup>They increase their bet to \$250. They lose money, ending up with only \$225. Having lost \$25 on their bet, they deduct it and get a tax benefit of 40% of that loss, or \$10. After paying back \$150, they are left with \$85.

adjust to the gain rate, there is a reduction in the difference in outcomes while if they adjust to the loss rate, there is an increase. If they adjust to the average, both are better off but the winner gains more than the loser.<sup>42</sup>

These initial results do not support increasing marginal rates on capital income. There will be clear efficiency losses but the distributive gains are uncertain. The exact nature of the distributive gains (or possibly losses) from increasing marginal rates depend on portfolio adjustments that are the product of factors that are difficult to predict

## **V. Must We Worry About Those Within a Wage Class Who Spend Rather Than Save?**

### *A. Savings Heterogeneity*

We have so far assumed that individuals within the same wage class save the same amounts. If this is true, the tax on the return to savings is merely a poor substitute for a tax on earnings. With no heterogeneity in savings decisions, a tax on savings is by assumption the same as a tax on earnings. Thus, in our running example, each class, rich, middle, and poor, were entirely homogeneous – each individual in each of the classes consumed the same number of figs or saved the same amount. A tax on earnings, therefore, could replicate the tax on savings.

Earnings or ability classes, however, are likely to include individuals with different propensities to save, with some individuals being savers and some spenders (or any range in between). When there is heterogeneity in savings, the replicating wage tax will only be able to replicate the tax on savings on average for each wage class. Within each class, switching tax systems will redistribute from spenders to savers. The merits of this type of redistribution (or the reverse) is precisely the focus of the some of the

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<sup>42</sup>The numbers are as follows. If they adjust to the gain rate, the outcome is \$120/93. If they adjust to the loss rate, the outcome is \$130/\$90. If they adjust to the average, the outcome is \$124/\$92.

literature on consumption taxation and, thus, we must face directly the arguments made in that literature.

We can illustrate the issue using our running example. Suppose that there are two rich individuals rather than one and they differ in their taste for figs. One of the rich consumes \$30,000 of figs and the other consumes only \$20,000 (both tax inclusive). On average, they consume \$25,000 of figs, as in the example. If the tax adjustment is made as specified in the example, so that the total labor tax is \$62,500, the two rich individuals are, on average indifferent. On average, they pay \$62,500 under the wage/fig tax and \$62,500 under the more progressive wage tax. If we consider ability classes as a whole, we can replicate the distributive effects of a tax on figs with a more progressive tax on earnings.

Within the class of the rich, however, the two individuals are not indifferent. Under the wage/fig tax, the individual who consumes \$30,000 of figs paid \$50,000 in labor taxes and \$15,000 in fig taxes, adding to a total of \$65,000. The individual who consumed \$20,000 in figs had total taxes of \$60,000. Under the more progressive wage tax, they both pay \$62,500 in taxes. The individual who favored figs is better off by \$2,500 and the individual who favored prunes is worse off by \$2,500. (Conversely, if the tax adjustment were made in the opposite direction, from wage tax to wage/fig tax, the redistribution would be in the opposite direction.) The substitution of the more progressive wage tax for the labor/fig tax redistributes within the class of rich individuals (even though it does not redistribute among different classes of individuals). The same would be true for any class of individuals where there is heterogeneity within the class. Given that such heterogeneity is likely a fact of life, we must ask whether redistribution from spenders or savers or savers to spenders is desirable.

Proponents of income taxes argue that redistribution from savers to spenders is desirable because savers are systematically better off than spenders. One prominent reason, associated with Warren 1980, is that even though in present value terms, their consumption is the same, savers

have more total consumption than spenders and, therefore, are better off. A second argument, not made in the tax literature but often made in the behavioral economics literature, is that many individuals systematically save too little and would be better off if they saved more. Finally, many have argued that savings has value above and beyond the future consumption it brings, such as security and power, and that we need an income tax to tax this imputed income from savings. We explore each of these arguments below, starting first with an attempt to set forth the appropriate grounds of the debate and the basic welfarist argument against redistributing from savers to spenders.

B. *Redistribution within Wage Classes v. Redistribution Among Wage Classes or Redistribution from Unlucky to Lucky*

1. Intraclass v. Interclass Redistribution.

Before beginning our analysis, it is worth emphasizing a point made immediately above: The only redistribution we need worry about is the redistribution within a wage class.

A common objection to a consumption tax is that it redistributes from one wage class to another. The rich save more than the poor and eliminating the tax on the return to saving benefits the rich. This is the luxury tax argument highlighted above. The comparison when making the luxury tax argument is between a \$400,000 per year lawyer and a \$20,000 per year janitor. A tax on savings has the effect of a luxury tax, since the wealthy disproportionately save, and eliminating that tax benefits the wealthy at the expense of the poor. Thus, a consumption tax increases the burden on the janitors and lessens the burden of the lawyers – or so it is argued. As discussed above, a consumption tax can be designed to avoid the entire force of this argument. The sum of wage and savings taxes on each wage class can be replicated with a wage tax. Thus, there is no net redistribution from one wage class to another. We do find intraclass redistribution: the burden of the \$400,000 per year wage earner who



spends rises relative to the \$400,000 per year wage earner who saves; the burden of the \$20,000 per year wager earner who spends rises relative to burden of the \$20,000 per year wage earner who saves. It is the desirability of this change in relative tax burden that we discuss below.

## 2. Return to Risk.

A second point to keep in mind is that the intraclass redistribution stems only from the treatment of the risk-free return to savings. The consumption tax is often opposed on the grounds that by not taxing the return to investment it ignores the morally relevant difference between winners and losers, investments that pay off and investments that do not. As Michael Graetz said, "lucky gamblers are not the same as unlucky gamblers." Graetz 1979. Warren makes the same point: "if A and B have identical expectations about their financial futures but A's hopes are dashed while B's wildest dreams are realized, should not a fair tax system take into account the differences in outcome?" Warren 1980.

Whatever the merits of treating winners and losers differently, they have nothing to say about the choice between an income tax and a consumption tax. As noted, both treat returns to risk the same way. If they tax capital at a flat rate, neither taxes the winners nor helping the losers. If it is desirable to tax risk using graduated rates, both income and consumption taxes can do so equally. In practice, either one might deviate from this treatment, but there is no reason to believe that one tax base systematically performs differently than the other in this regard.<sup>43</sup>

### C. *A Welfarist Analysis of the Change in Intraclass Burden*

Arguments for or against a consumption tax sometimes rely on

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<sup>43</sup>Warren argues on p. 1105 that the claim that income taxes do not tax risky returns relies on an ex ante perspective. This argument is incorrect. An individual's consumption is the same *in each period* under a Haig-Simons tax and a tax only on the risk-free return. See Kaplow 1994.

framing for their rhetorical or normative force. Opponents of a consumption tax argue that, all else equal, that tax will increase the burden on those who do not save; supporters of a consumption tax argue that the tax will eliminate the increased burden the income tax places on those who save. The first argument implicitly appeals to the state of affairs under existing law as a natural one and puts the burden on those who wish to change that order; the second argument looks to the no-tax world as natural and places the burden on those who would change that order.

There is, however, no reason to preserve positions in either the income tax or no tax world. The only question to be asked is which system, an income tax or a consumption tax, maximizes welfare. Under conventional assumptions, the answer to that question is a consumption tax maximizes welfare.

As usual, we compare the efficiency and distributive consequences of the two systems. We can no longer use the Pareto criteria because the spender may be worse off when we switch to the replicating wage tax. Nevertheless, equalizing the tax rates on labor income – by eliminating the indirect tax on labor income due to the tax on savings – produces welfare gains. Consider, again, the effect of the replicating wage tax on the Rich in our example. The tax rate on the Rich saver goes down from 65% to 62.5% and the tax rate on the spender goes up from 60% to 62.5%. The efficiency gain from reducing the tax rate on labor income for savers would be greater than the losses from increasing the tax rate on spenders because efficiency losses increase with the square of the tax rate. The efficiency gains are similar to the types of gains achieved from reducing the level of rate graduation. Moreover, there is the additional efficiency gain that is the primary subject of this article – the gain from eliminating the distortion in consumption choices, between current consumption and deferred consumption.

There is no reason to sacrifice these efficiency gains to redistribute from savers to spenders. Although individual circumstances differ, as a general matter individuals with the same wages or earnings ability can

choose to spend or save, much like they can choose to consume prunes or figs. The interest rate determines the relative prices of future and present consumption just like various factors determine the relative prices of prunes and figs. Given these prices, there is no reason to assume that individuals who choose one or the other, prunes or figs, present or future, are systematically better off. Indeed, if spenders and savers are equally well off when the return to savings is not taxed, an income tax has worse distributive consequences than a consumption tax because it makes them unequal after-tax. Therefore, a consumption tax remains more efficient than an income tax and, even taking into account savings heterogeneity, has equally good, and perhaps better, distributive effects.

The conclusion that a consumption tax is strictly more desirable than an income tax even with savings heterogeneity relies on the assumption that individuals maximize their welfare through their consumption choices – in particular, on the assumption that the decision by an individual to consume today rather than save and consume tomorrow is welfare maximizing. Opponents of a consumption tax reject this assumption. They argue that the decision to consume \$100 of figs today or save one's money at a market rate of return and purchase \$110 of figs in 5 years is different than the decision of whether to consume \$100 of figs or prunes today. The individual who chooses to consume \$100 of figs today is in the same position as the person who chooses to consume \$100 of prunes today but the person who chooses to consume \$110 of figs in 5 years is not in the same position as the person who chooses to consume \$100 of figs today. The assumption in this line of argument is that the saver is better off or, at the very least, that there is no reason to suppose that the saver isn't better off. The fact that the market (or a particular individual) values \$100 today as equal to \$110 in 5 years is seen as irrelevant (or at least not dispositive). Arguments of this sort are sometimes used to develop a fairness or horizontal equity case in favor of the income tax as opposed to the consumption tax: the saver, who has more resources or has consumed more, albeit at a later point in time, ought to pay more tax. The income tax levies this additional tax and the consumption tax does not.

It may be (but is not necessarily) the case that this type of reasoning can be used to create a case for an income tax. The case will depend not only on the assumption that spenders such as A are worse off than savers such as B, but on a host of other factors, including the heterogeneity of savings and the efficiency effects of each tax base. In the following section, we examine the argument that savers are better off than spenders, and the other assumptions necessary to establish a welfarist case for an income tax.

D. *Are Savers Better Off Than Spenders?*

1. The Ex Post Perspective and Reasoning by Example.

Proponents and opponents of a consumption tax debate have often relied upon hypotheticals to show why a dollar consumed today is or is not equal to the future value of a dollar consumed tomorrow. Irving Fisher argued for the former proposition in his tale of three brothers,<sup>44</sup> and virtually every commentator since has come up with a carefully constructed hypothetical to illustrate his or her position on the matter. For our purposes, it will be sufficient to join the debate in medias res, as it were, with Alvin Warren's 1980 article, *Would a Consumption Tax be Fairer than an Income Tax?* With characteristic economy and rhetorical flourish, Warren manages to build his hypothetical into a single sentence: "It is not at all obvious that consumption of a bottle of fine wine 30 years ago is, in any meaningful sense, equivalent to consumption of several cases today."

Warren's hypothetical is meant to illustrate the different perspective one gains by looking at the issue from an ex post perspective. It is one thing, argues Warren, to use present value to discount future consumption as against present consumption, and quite another to use the same discount rate to match present consumption (the several of cases consumed today)

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<sup>44</sup> Fisher (1906)

as against past consumption (the bottle consumed 30 years ago). The fact that this latter form of discounting seems inappropriate or odd casts doubt upon the use of present value concepts that underlay many consumption tax arguments.

Once we recognize that the only difference between an income tax and a consumption tax is the taxation of the risk-free return to savings, the difference between an ex ante perspective and an ex post perspective evaporates. All the information known ex post is known ex ante so any decision about who is better off can be made at either point in time.<sup>45</sup> Therefore, it cannot be the case that fairness depends on one perspective or another.

Nevertheless, Warren's hypothetical creates a powerful intuitive argument against discounting. We suspect the power of Warren's hypothetical, however, lies not in the perspective from which one discounts but from the startlingly high discount rate used in his example. The equivalence of one bottle to two-and-a-half (the midpoint of "several") cases implies an inflation-adjusted discount rate of approximately 12%. The riskless interest rate is generally estimated at around 1.5%.<sup>46</sup> At that more realistic rate, the equivalent trade off would be a bottle of wine thirty years ago and about a bottle and a half of wine today. The individual who consumes several cases of wine today seems better off than the individual who consumed a single bottle thirty years ago because, in market terms, and from the perspective of all but those

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<sup>45</sup>The arguments in the philosophical or political economics literature in favor of an ex post perspective uniformly rely on risk. See, e.g., Sen 1970. Where there is no risk, these arguments do not apply.

<sup>46</sup> Shuldiner \_\_\_\_\_. Note that while the consumption tax and income tax differ by only the riskless rate of return, in evaluating the rationality of savings decisions, it is appropriate to consider both the riskless rate of return and the inflation rate. In this example, since we are dealing with goods, rather than money, we can ignore the inflation rate. Any inflation-related change in the price of wine is already built into the example.

with the highest internal discount rates, he is.<sup>47</sup>

Consider an equally stylized, but somewhat more realistic example. A, B, and C each save \$10,000 from a summer job in their last year at college. A decides to use the money to pay for a European trip she takes with her significant other. The two stay in youth hostels and eat at cheap cafes. B saves his money and takes a similar trip with his wife ten years later. They stay in two star hotels and eat at two star restaurants. C saves her money and takes a similar trip with her significant other thirty years later. They stay in three star hotels and eat at three star restaurants.

Our hypothetical also assumes a high discount rate (although not as extreme a discount rate as Warren's). One cannot invest at the riskless interest rate and upgrade from a youth hostel today to a three star hotel in 30 years. We have, in this respect, built our hypothetical to make the consumption pattern favored by the saver, C, look better. Nonetheless, we have no intuition as to whether C has higher welfare than A. A has had her pleasure earlier, and another 30 years in which to enjoy the memories of her trip; C has higher explicit consumption, and perhaps has had years of pleasure anticipating her trip.

2. Studies on savings behavior.
  - a. Experimental studies

The subject of intertemporal choice has generated a great deal of literature, much of it in the relatively new fields of behavioral economics or decision theory. Researchers in these fields commonly use controlled

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<sup>47</sup> The selection of wine as a consumption good raises other problems, though perhaps not ones that directly affect the hypothetical. Wine is an acquired taste that times to experience and appreciate. As one develops a nose for wine, each subsequent bottle becomes more satisfying, so that the first bottle contributes to the enjoyment from later bottles. See, Samuelson (1952) "the amount of wine I drink yesterday and will drink tomorrow can be expected to have effects upon my today's indifference slope between wine and milk."

experiments, with college students as paid subjects, to gain insight into the determinants of consumption patterns. For example, an experiment might ask subjects how much they would pay or would have to be paid to move up or back the delivery date of a consumer durable,<sup>48</sup> or how they would like to schedule a few free meals at a favorite French restaurant.<sup>49</sup>

One persistent experimental result is that the decisions subjects make reveal extraordinarily high short-term discount rates. In one early study, subjects were asked how much they would need to be paid in the future to forgo \$15 today; the results implied short-term discount rates well over 100%.<sup>50</sup> These results have been replicated in a variety of later experiments.<sup>51</sup> Discount rates fall with time, however, and are much lower and virtually constant after the first year.<sup>52</sup> The declining rate of time preference is commonly described as hyperbolic discounting. Moreover, the high short-term discount rates fall dramatically as the amount at stake increases.<sup>53</sup>

While hyperbolic discounting seems evidence that some individuals will spend more than is rational – or at least more than would be expected under standard discount utility theory – other experimental results point in the opposite direction. For example, most subjects prefer an improving sequence of consumption even if this means deferring present consumption with no interest: \$10 today and \$12 next year is preferred

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<sup>48</sup>Loewenstein (1988).

<sup>49</sup>Loewenstein and Prelec 1992.

<sup>50</sup>Thaler (1981).

<sup>51</sup> See Benzion Rapaport and Yagil (1989); Chaptman (1996); Redelmeir and Heller (1993). See generally, Frederic, Loewenstein, and O'Donoghue (2002).

<sup>52</sup>Frederic et al (2002).

<sup>53</sup> See, Ainslie, and Hasla (1992); Green, Myerson and McFadden (1997).

over \$12 today and \$10 next year.<sup>54</sup> Thus, improving wage profiles are preferred over wage profiles that start high and decline and provide higher present value consumption.<sup>55</sup>

These and other results are sensitive to the construction or framing of the experiment.<sup>56</sup> Some of the more startling anomalies can be explained in a manner consistent with rational decision-making. For example, high discount rates may reflect the subjects' perception of the risk associated with deferred consumption.<sup>57</sup> A preference for rising consumption may conflict with standard discount utility theory but is consistent with the so-called "new hedonics" literature, which shows (or purports to show) that perceived welfare is affected not just by the absolute level of consumption but by the pattern of consumption.<sup>58</sup>

b. Retirement Savings and other Intertemporal Consumption Decisions

Economists have attempted to measure discount rates rates by looking at how individuals respond to choices involving temporal tradeoffs. Many of these studies involve choices in which the discount rate may be confounded by a lack of information. In this category are studies that show individuals are unwilling to pay extra for energy saving appliances or willing to trade in annuities for lump-sum payments with lower present value (suggesting high discount rates) or that individuals are

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<sup>54</sup> See, generally, Federic, et al (2002).

<sup>55</sup> Loewenstein and Sicherman (1991); Hsee, Abelson and Salovey (1991).

<sup>56</sup> For example, one study shows the discount rate is sensitive to the number of periods in which a given unit of time is partitioned. Subjects show higher discount rates if they are asked to discount consumption on a month-by-month basis than if they are asked to discount consumption on an annual basis. See Reed (2001).

<sup>57</sup> See Frederic et al (2002).

<sup>58</sup>



willing to expose themselves to increased risks tomorrow for higher pay today (suggesting discount rates the authors deem “reasonable”).<sup>59</sup>

A significant body of recent work examines the adequacy of retirement savings. A number of economists have concluded that many lower income individuals in particular save too little.<sup>60</sup> Evidence for this position includes savings behavior consistent with hyperbolic discount rates;<sup>61</sup> survey results that show many Americans wished they’d saved more;<sup>62</sup> lack of knowledge and reliance on faulty heuristics in making savings decisions.<sup>63</sup> Other researchers have concluded the savings decision of the poor are rational.<sup>64</sup> One recent study found evidence of

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<sup>59</sup> See Hausman (19\_\_);Ruderman, Levine and McMahon (1987);Moore and Viscusi (1999);Viscusi and Moore (1989)Warner and Pleeter (2001) (service personnel offered choice of lump-sum payment or annuity that offered an implicit 17.5% rate of return; more than three-quarters of enlisted personnel and half the officers selected a lump-sum payment); but see Lawrence (1991) (discount rates between 4% and 13%).

<sup>60</sup> See, e.g. Steven F. Venti, Choice, Behavior, and Retirement Savings (December 2004), available at \_\_\_\_\_. (“On the whole, the research indicates that a substantial proportion, and perhaps most, households in the U.S. fail to save “enough” income for retirement.)

<sup>61</sup> See, e.g.,Dynan, Skinner and Zeldes (2004) (Behavior of poor consistent with hyperbolic discount rate)

<sup>62</sup> See Employee Benefit Research Institute, 2004. The 2004 Retirement Confidence Survey Summary of Findings. EBRI. Washington D.C., Choice, James, Brigitte Madrian, Andrew Metrick and David Labison, For Better or Worse: Default Effects and 401(c) Savings Behavior in David Wise (ed.) Perspectives in the Economics of Aging 2004. See generally, the discussion of this issue in Venti, Choice, Behavior and Retirement Savings op. cit. fn 54 at 8. See also

<sup>63</sup> See Id at 4-6.

<sup>64</sup>See Hubbard, Skinner, and Zeldes (1995). See also Carrol and Samwick (1997) (Savings of poor consistent with “buffer stock” model of savings, in which consumers spend most of their life trying to maintain modest “target” wealth-income ratios and begin saving for retirement only around 50.

both over and undersaving.<sup>65</sup>

A recent survey of the literature on this subject concluded that the savings behavior of the upcoming group of baby boomer retirees is comparable to that of earlier generations and that, due to increased wealth, fewer members of the this generation will fall below the poverty line.<sup>66</sup> On the other hand, the study also concluded that some segment of the population saves too little to meet generally accepted standards of retirement adequacy.

### 3. Intertemporal consumption choices v. other consumption choices

The decision to consume today or tomorrow is not the only important consumption choice individual face, nor is it the only decision that, if made incorrectly, might reduce welfare. Consider virtually every other major choice made by individuals, such as the choice of spouse, career, food, and housing. We suspect that these decisions are subject to some of the same irrational forces as the savings decision, and indeed that is a tentative conclusion of the behavioral economics literature.<sup>67</sup> In a few extreme cases, we use the tax system to intervene in these decisions by increasing the cost of undesirable behavior through excise taxes. (We discuss the relevance of this approach to undesirable spending behavior in V, *infra.*). In all other cases, though, we take a neutral position with respect to consumption decisions. We do not take this position because we think individuals always maximize their welfare through their decisions, but because we are uncertain about our ability to measure

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<sup>66</sup> CBO, *Baby Boomers' Retirement Prospects: An Overview* (November, 2003)

<sup>67</sup> See, e.g., Lowenstein (1996).

welfare and feel intervention may worsen, rather than improve matters.<sup>68</sup> We look to satisfaction of preferences rather than actual welfare. Those who share this sense of uncertainty as to experienced welfare with respect to current consumption decisions might be expected to share a similar sense of uncertainty with respect to intertemporal consumption decisions. (Conversely, those who feel it appropriate to second-guess intertemporal consumption decisions should feel it appropriate to second-guess current consumption decisions.)

A final word about the difficulty of determining actual welfare, as opposed to assuming all individuals with equal opportunity sets are equally well off and realize equal welfare in preference satisfaction, is perhaps appropriate here. We have thus far assumed that spenders and savers differ only in their intertemporal consumption patterns. If we are willing to assume that savers make worse intertemporal decisions, perhaps we ought to entertain the possibility that the two groups differ in other ways, as well. To suggest the path this line of reasoning might lead, suppose we find that spenders are best described as pleasure loving, expansive and in the moment, while savers are nervous and anxiety-ridden. In that case, we might conclude that savers are worse off than spenders, though whether it would be welfare enhancing to redistribute income to savers would be open to question.

E. *Is there Sufficient Heterogeneity among Wage Classes for a Consumption Tax to Significantly Raise Tax Rates on Spenders?*

We have seen that while there is some evidence that some spenders may spend foolishly, there is no real evidence as to the amount of welfare loss experienced by spenders, or whether, if the tax system ought to look through preference-based utility to experienced utility, it ought to start (and stop) with foolish savings decisions. Suppose, though, that for the

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<sup>68</sup> For a discussion of the difficulty in correctly adjusting for one form of mistaken preferences as to current consumption, see Strnad, Jeff, *The Fat Tax* \_\_\_\_.

sake of argument we assume that spenders are clearly worse off than savers. As noted above, this is relevant to the consumption tax debate only if and to the extent there is heterogeneity in savings behavior among the same wage class. An appropriately progressive consumption or wage tax that replaces the income tax takes care of any distributional issues among different wage classes.

In fact, an argument for an income tax based on savings heterogeneity needs more than just some heterogeneity. It needs sufficient heterogeneity that the benefits of redistributing from savers to spenders offsets the efficiency losses from taxing the return to savings. That is, the savings heterogeneity argument is an argument about redistribution, and the extent of the alleged distributive benefits depends on the extent of savings heterogeneity within wage classes, while the extent of the efficiency losses is, to a large extent, unrelated to the heterogeneity.

The actual savings profile of various wage classes is an empirical question that is sensitive to the data set used, the specification of the model used to tease out savings rate from that data set, and so on. However, current estimates suggest that nonsavers disproportionately fall at the bottom of the income ladder and that nonsavers in this category, at least, are unlikely to experience *any* real increase in tax burden as the income tax is replaced by a wage tax. One recent study, for example, gives the savings rate for the bottom quintile as -23%, 1.4% or 0, depending on methodology and data set used.<sup>69</sup> The savings rate for the top quintile, which the authors acknowledge to be biased upward, ranges from 44% to 23% to 18%, depending on the methodology and data set used. No breakdown is given for the rate of savings within an income class; however, it seems inconceivable that members of the bottom quintile could be disadvantaged by the substitution of a wage or consumption tax that raised the same amount of revenue from that group as the current income tax. By and large, that group is only paying a wage

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<sup>69</sup>Dynan et al 2004 at 416.

tax now. There simply could not be enough tax collected from the savers in that group to require any significant increase in the tax burden of the nonsavers.

Venti and Wise use lifetime social security records to examine the dispersion of wealth within households with similar lifetime earnings patterns.<sup>70</sup> They find considerable heterogeneity of savings within similar wage groups. Nonetheless, an examination of their data shows it unlikely that adoption of a replicating consumption tax would noticeably increase the tax rate on nonsavers – at least those nonsavers in the bottom half of the income brackets. For example, the mean household in the third decile had approximately \$110,000 in assets (excluding social security) at the time the head of the household was between 51 and 62. The median household in that group had assets of only about half that.<sup>71</sup> The difference between the median and mean was accounted for a relatively few number of high savers. However, while the relative difference between median and mean was high, the difference between the mean and median as a percentage of labor income was not high, and the difference in taxable investment income earned on that difference in wealth, as a percentage of labor income, was presumably quite small. This is particularly true because the difference in wealth was primarily comprised of pensions and housing, both of which are effectively untaxed under an income tax. Thus not only was investment return small compared to wages, the high saving households in that bracket paid little tax on investment income. As a result, it is reasonable to believe that income could be replaced with only a slight increase in taxes on labor.

F. *Might a Consumption Tax Benefit Rather Than Disadvantage Foolish Spenders?*

We have seen that a primary objection to the consumption tax is that,

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<sup>70</sup>Venti and Wise, 2000.

<sup>71</sup> Venti and Wise 2000, tables 3 and 4.

relative to the income tax (though not to the no-tax world) it increases the tax burden on spenders. This is seen as a morally relevant distinction because spenders are seen as worse off than savers. Spenders and savers may be presented the same opportunity set but those who save are seen as having higher welfare than those who spend, at least when measured from an ex post perspective. An income tax is superior because it recognizes this distinction, and levies a higher tax on the spender.

A primary difficulty with this line of reasoning is that an income tax has another consequence as well: it increases the cost of saving, thus encouraging spending over saving and exacerbating the very problem it is claimed to ameliorate. A consumption tax, by contrast, may increase the tax burden on some spenders (depending on the degree of heterogeneity) but, relative to an income tax, will encourage saving over consumption. Which subgroups of the population will respond to the change in relative prices of current and deferred consumption, and to what extent, is obviously an empirical question. Consider, for example, a decline in the price of figs. The primary effect of the lower price might be to cause those who already eat a lot of figs to eat more. Alternatively, the lower price might cause those who previously preferred prunes to figs on cost grounds to switch their preferences. The same questions are raised, within a wage group, with respect to a change in the price of deferred consumption.

It is possible, however, to describe two effects of the change to a replicating wage tax on those who fall in the low savings category. First, for all but the members of this group that have absolutely no interest in deferred consumption, the removal of the current excise tax on deferred consumption will generate a perceived welfare gain. The analysis here is identical to that described above with respect to Middle and Rich taxpayers described above. Second, the actual welfare gain will be greater than the perceived welfare gain because, by hypothesis here, members of this group fail to save enough – at least in the income tax world.

Indeed, reducing the tax on savings is a wholly conventional tax

response to a perceived problem that some individuals reduce their welfare through excessive spending. It is similar to the paternalist rationale (among other rationales) for subsidies on other goods and services, such as health care. Seen in this light, supporting an income tax, which encourages spending, out of solicitude for those who are made worse off by spending, is perverse. It is like noting the welfare-reducing effects of smoking and seeking to help smokers by reducing the price of cigarettes.

### G. *Conclusion*

We are finally at the point where we can state the conditions under which solicitude for the spender provides an argument for an income tax. First, we must believe that present consumption provides less welfare than deferred consumption. Second, we must believe that spenders cannot understand this or act upon this knowledge so that subsidizing spending and penalizing savings does not make spenders even more worse off. Third, there must be heterogeneity of savings sufficient for a replicating wage or consumption tax to significantly increase the burden on spenders. This decline in spender welfare from that increased burden must exceed the sum of a) the increase in spender welfare from increased savings, if any; b) the increase in saver welfare from the reduction in tax on labor income; and c) the increase in saver welfare from the elimination of the excise tax on deferred consumption. The odds that all those conditions are met seems quite low.

This conclusion – that solicitude for the spender cannot justify an income tax – is relatively insensitive to assumptions one makes as to the declining marginal utility of income or the weight one gives to the welfare of the poor. Suppose, for example, that one is primarily concerned with the welfare of those in the bottom quartile of income. A consumption tax would increase the welfare of those in the top three quartiles and one could use that gain to redistribute to the bottom quartile. Within the bottom quartile the replicating consumption tax would be only slightly higher than the current wage tax (because there is not much tax on savings that would need to be replaced). Even without the infusion of funds from

the upper three quartiles, the replicating wage tax should increase welfare within the bottom quartile for the reasons described immediately above. Indeed, the replicating wage tax should increase welfare within each wage group. The infusion of those additional funds from the upper quartiles would further increase welfare, to the point at which the consumption tax would almost certainly be Pareto superior to all those in the bottom quartile.

## **VI. Does Savings Bring Value Beyond Future Consumption?**

Consumption tax opponents often argue that savers, unlike spenders, get intangible benefits from holding wealth, and that these benefits that are not captured by a consumption tax. For example, Murphy and Nagel (2002) at 115 argue:

It should be obvious that wealth is an independent source of welfare, quite apart from the fact that some of it may be consumed later. As Henry Simons famously put it, in 1938, ‘In a world where capital accumulation proceeds as it does now, there is something sadly inadequate about the idea of savings as postponed consumption.’ Commentators typically mention such factors as security, political power, and social standing.

See also Treasury 1984 at Vol. 1, p. 209 (“If accumulation of wealth has value beyond the consumption that it can buy – if it confers power, prestige, or peace of mind – then annual consumption does not measure equals.”).

Strictly speaking, an income tax misses these intangible benefits as well. It is argued, however, that by taxing the explicit return to savings, an income tax levies an indirect tax on these benefits. Thus, it is argued that an income tax offers a second-best way of taxing the imputed benefits of wealth. For the reasons described below, the argument is incorrect.

First, the argument, even if true, would not raise distributional issues



under the replicating consumption or wage tax proposal we outline. This is because to the extent savings are constant within wage classes, the sources of welfare or utility from savings are irrelevant for distributional purposes. Distributional equity is held constant by the consumption or wage tax. To the extent there is savings heterogeneity, untaxed intangible benefits from wealth would create distributional concerns only if we believe spenders do not maximize their own welfare, and then it is by no means clear that taxing these benefits would ameliorate, rather than exacerbate, the welfare loss caused by excessive spending. Because intangible benefits from savings are simply a subset of benefits from savings, the analysis in the previous section of this paper would extend to these forms of benefits.

The primary issue raised by the intangible-benefits-from-wealth argument is, instead, efficiency. If part of the consumption stream from savings, the intangible benefits of wealth, is untaxed, it will be tax-preferred over other forms of consumption. People might seek too much security, status, and prestige.<sup>72</sup> If correct, we might be concerned about these efficiency consequences.

The efficiency concerns, however, are baseless. The reason is that a consumption tax accurately captures the consumption of intangible benefits associated with savings because those benefits are a function of net after-tax consumption, rather than the gross amount of savings. A consumption tax reduces consumption and in so doing, reduces those benefits. The point is ably made by Shaviro (2004; 106):

Why does wealth offer security, political power, and social standing? The answer must be because of its value – that is, because of what it can be used to buy. . . . savings and wealth are indeed subsidiary to consumption in that they derive their value

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<sup>72</sup>Note that the most prominent recent commentator worried about individuals excessively seeking prestige, Robert Frank, proposes a consumption tax as part of his cure. See Frank [date].

entirely from that potential use, whether its exercise is proximate or not. That ability to buy things is, after all, the difference between real money and play money from board games such as Monopoly and Life.

A consumption tax, by taxing goods purchased with savings, taxes these intangible benefits. For example, assume that the knowledge of available consumption gives a saver the sense of security because she knows that when she desires or needs something, she will have the money available. The imposition of a consumption tax reduces the amount available. This in turn reduces the security (or power or prestige) associated with the savings.

We can even go further than Shaviro, and argue that power and prestige likely come more from labor than from savings. To see why this may be the case, it may be useful to compare an individual with a \$20 million diversified portfolio that provides explicit consumption of \$2 million a year with a group of chief executive officers whose salaries provide the same explicit consumption. As noted above, to the extent the individual with the brokerage account realizes welfare from security, that welfare is a function of after-tax consumption and is effectively taxed by a consumption tax. The securities in her portfolio are unlikely to give her any power whatsoever over the companies in which she invests. Most other forms of wealth-related power seem a function of after-tax consumption rather than before-tax savings. The power over perspective beneficiaries, for example, is ultimately a function of the amount of (after-tax) consumption any gifts might fund. Political power realized through the prospect of contributions would also be a function of after-tax consumption, since contributions would be treated (then as now) as non-deductible consumption under a cash-flow tax. The only apparent case in which power might be a function of before-tax savings is power over charitable organizations attributable to future donations, since gifts would presumably be deductible under a consumption as under an income tax. Any prestige or respect that comes from wealth is much more likely to be a function of her past or future consumption, which is or will be public,

than the before-tax amount of her holdings. Again, since a consumption tax reduces the amount of consumption, it will reduce the imputed income from that form of consumption-related benefit.

The executives, in contrast, realize enormous power relative to their explicit consumption or the capitalized value of their future consumption stream. They are apt to have an army of subordinates, decide on the allocation of substantial amounts of capital and so on. They are apt to be accorded more respect than the holder of the brokerage account, both because respect often accompanies power and because, to the extent respect accompanies wealth, their wealth is more visible.

The same relationship between savings and wages and these sorts of intangible benefits seems to hold for individuals with lower levels of less wealthy. An attorney with an income of \$250,000 is apt to have more power and prestige than someone with an equivalent amount of consumption financed through the return from savings.

The final objection to the imputed income from savings argument is that the rationale for including within the tax base these forms of intangible benefits but excluding other intangible benefits and burdens associated with consumption or income seems unclear.<sup>73</sup> As noted in the previous section, consumption may bring with it regret, anticipation, pleasant memories and the like. Labor carries with it an even wider variety of intangible benefits, including the very benefits mentioned in connection with savings. Focusing only on a few of the benefits and burdens associated with deferred consumption is apt to produce misleading policy proposals.

The argument that intangible benefits from savings supports an income tax is in many ways similar to the argument that foolish consumption decisions of spenders supports an income tax. Each

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<sup>73</sup>See Kaplow [date].

argument requires that we depart from conventional analysis, and look at individual measures of welfare that are impossible to measure. Each argument selectively choose only certain measures of welfare to examine. And yet neither argument, if carried out on its own terms, shows than an income tax is superior to a consumption tax.

## **VII. Why Earnings?**

We want to close with an exploration of some of the deeper, implicit assumptions of the models we rely upon for our arguments. AS 1976, and many economic models of taxation, start with a belief that taxes should maximize social welfare which is a function solely of individual utilities. They end with the conclusion that we should tax earnings, usually with the intermediate step that earnings are a good surrogate for ability. Earnings are not ability, and ability is not utility. It is not even clear what ability is at all. Indeed, welfarists regularly condemn references in tax arguments to ability to pay. (Griffith, date; Kaplow, date; Simons (1938, 31) (attempts to go beyond an objective concept of income “lead[] directly back into the utter darkness of ‘ability’ or ‘faculty’ or, as it were, into a rambling uncharted course pointed only by fickle sentiments.”). The question is how these factors relate to one another, and why taxing earnings is the best way to maximize utility. Nothing in the proofs make this connection. Instead, it comes from the way that the models are set up and the particular parameters of the utility functions they use. These assumptions, often implicit and unquestioned in the models, deserve to be examined if we are to put our faith in the models.

We break the discussion into two steps. First we discuss why ability is thought to be central to utility and, therefore, central to taxation. Second, we discuss the extent to which labor earnings are a good measure of ability. Included in this second point is a discussion of whether there are other possible measures of ability and if there are, how they affect the AS 1976 conclusions.

### *A. Ability and Utility*

The economics literature generally assumes that ability is the central attribute that should be taxed. The only reason we do not tax ability is because it is not observable, and therefore we must tax surrogates, such as labor earnings. The same literature, however, assumes we are trying to maximize social welfare, which is a function of utility, not a function of ability. The question is how we get from utility to ability.

Ability and utility are connected in the models because utility is assumed to be a function of consumption and leisure time. More consumption, more leisure, or both, are assumed to increase utility. Someone with a higher ability to earn has more choices with respect to consumption and leisure than does someone with a lower ability. The higher ability individual can choose equal consumption and more leisure, more consumption and equal leisure, or any combination. Earnings ability, therefore, increases an individual's choice set and for this reason is assumed to increase utility. Someone with high ability could always mimic a person with low ability but need not and, therefore, is at least as well off and likely better off.<sup>74</sup>

It may be the case that this approach is wildly off the mark. It is entirely an empirical question whether those with higher ability have higher utility, although measuring either is fraught with difficulties. We can imagine other cases. Perhaps, for example, individuals all have equal utility (and marginal utility) – Bill Gates might have no greater utility than a pauper. We can, alternatively tell stories where individuals with high ability are worse off and individuals with low ability are better off. A brilliant individual may suffer from existential crises, and an individual of low ability may find abiding happiness. Perhaps those able to reach

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<sup>74</sup>Going back to economics 101, we can think of individuals as having an indifference curve between two goods, a composite consumption good and leisure. Individuals choose their relative amounts of consumption and leisure by choosing the point that is on the highest possible indifference curve within their budget. Individuals with higher ability have a bigger budget and, therefore, can pick a higher indifference curve.

certain meditative states or runner's highs are the best off. Research into utility levels, under the rubric of happiness research, may yield yet entirely different conclusions about factors that affect utility. This is an old controversy, dating back to the origins of utilitarianism and continuing into modern times Bentham (1789) (push-pin poetry controversy) Sen, (various dates).

We suspect, however, that arguing over the exact components of individual utility or welfare, interesting and valuable as it may be, is orthogonal to the debate between an income tax and a consumption tax. Thinking about other sources of utility may lead to suggestions for taxation based on very different parameters, but the arguments for both income and consumption taxes depend on relatively conventional assumptions about utility increasing with consumption and leisure time.

The assumption that higher ability leads to higher utility implies or includes within it an assumption that utility does not vary with preferences. Although different individuals may have different tastes, given the same capacity to consume and the same leisure time, the models assume their utility will be the same. The primary reason for this is that we are reluctant to make judgments about these sort of choices. Chocolate might really be better than vanilla, but we do not feel confident that chocolate lovers systematically have higher utility than vanilla lovers. Economics models, therefore, do not permit utility to vary based on preferences of this sort. In a sense, they are models of preference satisfaction rather than utility (or, using the standard term, economists using these models are preference utilitarians). The Penguin Dictionary of Philosophy (19\_\_)

The discussion about spenders and savers above was effectively about this issue. Income tax supporters claim is that savers are systematically better off than spenders are – saving really is better than spending even if chocolate is not really better than vanilla, or figs better than prunes. As discussed above, while there is some evidence that, at the margin, for some subset of the population, savings would be better than

current consumption, that evidence is not uncontested and even for that subset of the population, that proposition does not imply that an income tax is superior to a consumption tax.

## 2. *Earnings and Labor Income*

The second major assumption in the AS 1976 argument is that wages are the only way to measure earnings ability. Wages certainly are an important way of measuring earnings ability. After all, the models assume earnings ability increases utility because it increases choice. It can only increase choice by increasing wage rates (or the possibility of earning a high wage, even if an individual chooses not to). Therefore, taxing wages (or consumption) will be at least part of taxing ability. There may, however, be other methods of measuring ability.

In particular, there may be goods that are differentially consumed by those of high ability. Nichols and Zeckhauser 1982 referred to these as “indicator goods.” The idea is that at any given level of income, those high ability individuals who are shirking – choosing leisure over labor because of the tax on labor – will be likely to consume a different set of items than those of who have lower ability but are working hard. The replicating wage tax strategy does not work with indicator goods. Because individuals with the same labor income but different abilities make different choices with respect to the indicator goods, the replicating wage tax cannot differentiate individuals on this basis. The presence of indicator goods, therefore, provides an additional tool (beyond wage or consumption taxation) to identify those of high ability.

Indicator goods do not arise in AS 1976, because individuals were assumed to be identical except with respect to their wage rates. That is, in their model, individuals varied only in one way, wage rates, and, therefore, did not have differing preferences. The only way to differentiate individuals, therefore, was based on wages. It is highly likely that individuals are heterogeneous in their tastes, so the possibility of indicator goods is real.

Finding examples of indicator goods is tricky because we need to be able to observe ability. That is, we have to find items that those of high ability consume (or fail to consume) independent of their earnings. Because ability cannot be observed directly, we have to make implicit judgments about various tastes as a signal of ability.

Nichols and Zeckhauser do not offer any examples of indicator goods. (They use a hypothetical to illustrate the issue, but do not explicitly state that they believe the hypothetical to be indicator good.) Kaplow (2004) suggests that high-brow culture is such a good. Long abstract novels and plays, modern art, and classical music arguably require greater ability to appreciate. Therefore, those with higher ability are more likely to consume these items independent of income, and these items thus should be taxed. Saez (2002) uses the example of smoking tobacco. He argues that those with higher ability tend to smoke less and “this clearly cannot be due to the mechanical fact that they have higher disposable income.” Saez at 226. All else equal a subsidy for smoking or equivalently, a tax on “not smoking” (the “activity” of the high ability people), would be desirable if Saez is correct. The reason is that a tax on individuals for failing to smoke cannot be replicated with a labor income tax and the activity of not smoking correlates with ability. Blumkin and Sadka (2005) suggest that education might be an indicator good. Taxing education allows us to tax those of high ability in ways that merely taxing wages does not.

These claims are empirically unverifiable, although they have intuitive appeal. We have to be careful, however, that their intuitive appeal is not a result of acculturation. At a minimum, items such as smoking (or not) or high brow culture may appeal to individuals of differing ability at different times in history.

While it is interesting to debate the merits of these subtle and often odd taxes, our question is whether we should have a tax on the return to savings (at the same rate as the tax on labor income). Those who argue for a tax on savings because of its redistributive effect make precisely the



wrong argument in this respect. They argue that only the wealthy can save – the poor must spend all of their resources merely to survive. This claim, however, suggests that savings depends entirely on resources rather than being related to some innate ability. The rich save more because they have more to save. The AS 1976 argument shows that this rationale is wrong because a tax on savings is merely a substitute for a tax on earnings and a direct tax on earnings is superior. Instead, to justify a tax on savings on the grounds discussed in this section, savings would have to depend on ability, not earnings. Those with low ability would have to save less than those with high ability even at the same income level (or changes in savings would have to be different than changes in income). This is a different claim, and one which is much more difficult to establish.

The only commentator we know of who has made this argument is Saez (2002). He suggests that savings is an indicator good. (He does not use that term, but his definition is essentially the same as Nichols and Zechauser's.) Therefore, we would want to tax savings as a way of taxing ability.<sup>75</sup> He cites a single paper, Lawrance (1991), for support but says that the claim is also supported generally in the literature. Our search of the literature, however, shows that the correlation of savings with ability is unknown. The reason is that we have no independent measure of ability. It might be the case that people tend to save too little. Those who

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<sup>75</sup>Saez claim has additional problems even if one accepts his claim. He argues, “higher income individuals save more not only because they have more income to save but also because they might have a better financial education and be more aware of the need to save for retirement.” Saez at 228. Savings rates under his argument, however, do not depend directly on ability. Instead, they depend on education which in turn depends on ability. Rather than taxing savings, however, we could tax education as the more directly signal of ability.

A second problem with Saez's argument is that he only shows that a marginal tax on some commodities might be optimal and illustrates this with a two period example and a tax on savings. In the two period example, a tax on savings can be marginal, but in the more realistic, infinite horizon case, it cannot. None of his proofs go through when the tax on the commodity is non-marginal, so we cannot learn anything from his model about whether a tax on savings is desirable.

save more, under this argument, have higher ability because they are smart enough to avoid the trap of saving too little. But this seems circular – it defines the act of saving as meaning that an individual has high ability rather than independently trying to measure ability and correlating it with savings rates. The studies themselves cannot sort this out because they have no independent measure of ability.<sup>76</sup> Thus, while it is possible that savings is an indicator good, there is little evidence to support this view and to the extent it is, we suspect it is so only because understanding the need for savings takes education and education is an indicator of ability. In this case, we would want to tax education directly rather than tax savings

### **VIII. Conclusion**

Supporters of an income tax have argued that any efficiency gains realized from switching to a consumption tax are overstated: Eliminating of the tax on savings will require higher taxes on wages and efficiency gains from eliminating the first tax will reduced or offset by the efficiency loss by increasing that latter tax.

Supporters of an income tax also make a number of related normative arguments. They argue that a consumption tax is regressive because it reduces the tax burden on savers, and savings rates rise with income or wealth. They also argue that, among those with equal opportunity sets, those who save are better off than those who spend. They are better judges of their own welfare and, in addition, benefit from the non-taxation of imputed income from savings.

We show that none of these arguments is correct. The tax on savings is a tax on labor that produces that savings, and it is a particularly inefficient tax on that labor. Replacing that tax with a direct tax on labor, or an economically equivalent consumption tax, will generate efficiency

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<sup>76</sup>There literature on savings rates is vast. See, for example, \_\_\_.

gains and appropriately tax most forms of imputed income realized savings and deferred consumption. It will also leave the tax burden unchanged among those with equal wages, or who for other reasons find themselves with equal opportunity sets.

A properly designed consumption tax should be more desirable even if, as is sometimes claimed, many individuals undersave, reducing their own welfare and reducing their welfare relative to those with equal opportunity sets. A consumption tax will always increase the welfare of savers. But under most assumptions, it will also increase the welfare of those who save too little. Most of those who are said to undersave are poor, and would benefit from redistribution of some of the efficiency gains realized by the wealthy. More generally, if individuals save less than is optimal for their own welfare, conventional tax policy would be to encourage savings by eliminating an income tax in favor of a consumption tax.

Our analysis is based on a comparison of ideal tax regimes. A comparison of non-ideal systems would strengthen our conclusion. Under any plausible assumptions, a properly designed consumption tax is superior to an income tax on welfarist grounds.

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Readers with comments should address them to:

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