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A Second Look at Presumptive Taxes**

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Taxing Potential Income: A Second Look at Presumptive Taxes¹

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I. Introduction

The goal of this paper is to bring together two unconventional approaches to taxing individual income, the potential income tax and presumptive income taxes. In this paper we argue that the combination of two approaches considerably increases the attraction of each of the separate concepts; in particular a presumptive taxation perspective transforms the potential income tax into a more operational concept while a potential income tax perspective provides strong theoretical justification to presumptive income taxes. The paper also illustrates how a potential/presumptive income tax could be implemented for labor income using data from the U.S. as an example.

Presumptive income taxation has traditionally been looked at as a “second best” or remedial approach to taxing income. Political influence, tax planning, the underground economy, and tax evasion of those marginally ‘in’ the tax system make administration of any tax system difficult. Presumptive income taxation has been recommended and has been used around the world to counter these issues of the hard to tax sector when there is no practical way to implement conventional income taxes on earned actual income either because of lack of information on taxpayers’ income, lack of education or sophistication of taxpayers, or the lack of tax administration expertise and funds to enforce and monitor a standard income tax. The reason presumptive income taxes have been viewed traditionally as a temporary and not very desirable solution to taxing income is that the goal in designing presumptive taxes has been to approximate actual measured income when actual income for a variety of reasons is difficult to measure. It is

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for this reason that the question of what may be the theoretical justification for presumptive taxation has not been very frequently asked. But what if we view presumptive taxes as an approach to get information on “potential income”? That is, what if we think of presumptive income taxes not as an approximation to actual earned incomes but rather more generally as a methodology to measure potential income? If potential income (as opposed to earned income) were considered to be a preferred approach to taxing individual income, then presumptive income taxes could or should be look at in a more favorable light.

In the past, other economists have thought and discussed the possibility of potential income taxes, defined as taxes that would be paid on the income that individuals *could* actually make given their education levels and other aspects of human capital.² The main attractiveness of the potential income tax is that by taxing potential income as opposed to actual earned income many of the efficiency losses associated with income taxes could disappear. For example, in the case of labor supply, individuals would not have the disincentive to working harder because potential income would not be affected by actual work effort.³ On the contrary, a potential income tax would provide positive incentives to using human capital assets, quite like land taxes provide incentives for putting that resource to its best most productive use.⁴ As summarized by Sadka and Tanzi (1993), Einaudi noted in 1938 that taxation based on average income (viewed by Einaudi we suppose as a measure of potential income) encourages productive activity above the average. In the case of labor supply, average income and taxable income could be estimated based on the average returns to a set of human capital characteristics—returns above the average would not be taxed.

However, as we discuss further below, potential income taxes may not be free of creating a different kind of distortions, in particular negative incentives to the accumulation of human capital, which may or may not go beyond the negative incentives to the accumulation of human capital that exists under a tax on earned income. In addition, potential income taxes may pose some hard equity dilemmas.

In reality, no country has introduced a full potential income tax system. However, most tax systems have elements of potential income taxation. Besides presumptive income taxes which may be interpreted as taxing some form of potential income, certain asset taxes, most importantly market-valued property taxes can be thought of as a potential income tax from real estate.⁵ Many countries use an estimated income methodology to tax small businesses (Russia,

² Interestingly, Mirrlees (1971, page 175) thought of actual income as the best estimate of potential income: “One may obtain information about a man’s income-earning potential from his apparent I.Q., the number of his degrees, his address, age or colour: but the natural, and one would suppose the most reliable, indicator of his income-earning potential is his income.” Sadka and Tanzi (1993) and Tanzi (1991) provide a rich history of the development of the application of a potential income tax.

³ As we see further below the estimation of potential income or presumptive measures are affected by the collective and individual behavior of wage earners but, the impact on estimates of potential income by any single individual can be regarded as negligible.

⁴ The benefits of land value taxation in terms of its neutrality are often attributed to the writings of Henry George (1904). More recent supporters include Vickery (1999), Tideman (1982), and Wildasin (1982) among others.

⁵ In the case of a market assessed property tax, taxpayers can be seen as paying the tax on the basis of an implicit flow of income that the market will pay for the use of the property rather regardless of how the property is actually being used. In this sense, therefore, a market assessed property fall on the capitalized value of the potential income that can be realized from the property.

Ukraine, Spain, Angola, and Belgium for example, see Bird and Wallace, 2005). At the other extreme lies the case of presumptive taxes, still quite common especially in developing countries. Tanzi and Casanegra (1987) noted some years back that there may be more taxpayers around the world being taxed on some presumptive basis than on the basis of actual well-measure income. This statement is quite likely still valid today.

The rest of the paper is organized as follows. In section two we review the past literature on the feasibility of potential income and presumptive income taxes. In section three we explore the use of human capital theory and empirical findings to design a presumptive tax on labor income utilizing a potential income principle as opposed to a real or actual income principle. Section four reviews some of the challenges to the implementation of potential income taxes. Section five offers some conclusions.

II. A review of potential income and presumptive taxes

Potential income, defined as the market's willingness to pay for the use of an individual's human capital, has been suggested at different times as an alternative measure to earned income as the index of a person's ability to pay taxes.⁶ In more recent times, several authors, including Allingham (1975), Tanzi (1991), and Sadka and Tanzi (1993) have discussed potential income as a criterion for ability to pay, most typically focusing on potential income of businesses. Sadka and Tanzi (1993) summarize versions of a potential income tax including the 1998 Mexican tax on business' gross assets (the 'impuesto minimo sobre los activos'), and a similar tax in Argentina (introduced in 1990), Allais' general tax on physical assets, and the generation of taxes on assets used in centrally planned economies in the 1960s.

In actual practice we can find tax systems that incorporate human capital and/or potential income into their tax bases. For example, at the local level in Pennsylvania governments have used an occupational-assessment tax to raise revenues since the 1800s.⁷ There, a county assessment office assigns assessed values to various occupations. In those localities that choose to levy this tax, the tax liability is determined by multiplying the local millage rate by the assessed value. In 1993, 292 municipalities and 124 school districts levied this tax albeit at relatively low levels. In the international experience we can also find various forms of presumptive taxation that resemble in some ways a tax on potential income. The *forfait* system for many years in operation in France and many former French colonies represents a presumptive income approach, based, to a large extent, on potential income. For example, in the case of farmers, the tax liability is determined from the average rate of return per hectare as estimated by the French agricultural department, taking into account the type of farm and region. A similar tax is the *tachshiv* system used in Israel, which is used to tax those trades and professions that do not keep accurate books⁸. Other methods of presumptive taxation that are used in developing countries, which have elements of potential income taxation, are reviewed by Rajaraman (1995)

⁶ From the stand point of potential income, the "ability to pay" standard of fairness becomes the "ability to make and pay" principle. See Musgrave's (1959) classical discussion of the history of indexes of ability to pay.

⁷ See Rodgers and Temple (1995).

⁸ See, for example Goode (1981) and Tanzi and Casanegra de Jantscher (1989) for a more detailed account of the *forfait* and *tachshiv* systems.

and Bird and Wallace (2005).

There is also a strong element of potential income taxation in those taxes levied on enterprise assets (as opposed to enterprise income).⁹ These taxes are levied in some European countries, such as Germany and Austria, as a companion to the corporate income tax. They are also used in Latin America and some African countries, as minimum taxes creditable against the corporate income tax. For example, as noted above, Mexico and Argentina impose a tax on the gross assets of businesses. In essence, enterprise asset taxes are similar to market-based property taxes in that they can be seen as taxing potential income flows. Interestingly, under planned socialism in the former Soviet Union and Eastern Europe, taxes on businesses were often levied as a predetermined rate of return on assets (often 6 percent of the value of fixed assets) rather than profits (Gray 1991). That could be considered analogous to a potential income tax on enterprises.

As these examples show, there is some precedent for using implicit characteristics such as an individual's occupation or a firm's assets to determine the tax owed based on the potential income generated. However, their relative importance in tax systems and frequency of use have been minimal. In most cases, these taxes have been used as a substitute for the real thing, commonly personal income taxes, and often times are imposed along with more traditional income tax systems. For these reasons, these forms of taxation have not been studied in much detail and little is known about either their efficiency properties or their relative fairness.

However, the efficiency properties of potential income taxes are rather apparent. For example, the advantage of a tax based on human capital is that it is a tax on "potential income" rather than "actual income." While a tax on earned income discourages work effort more or less, depending on the tax rate and the other aspects of the tax, a tax on potential income does not change with actual behavior of the individual once human capital has been acquired. Depending on an individual's work effort, potential income may be more or less than earned income. A tax on potential income rewards those individuals that work harder and earn more than their potential income and penalizes those individuals that earn less than their potential income. Individuals who put greater than average work effort and earn income in excess of potential income, pay tax only on potential income and keep the excess. Under the potential income tax, unlike the case of earned income taxes, individuals are not penalized for undertaking greater than average work effort. Therefore, a tax on potential income may increase aggregate productivity by encouraging work effort.

On the other hand, a tax on "potential income" could discourage human capital accumulation in the long run since individuals with higher levels of human capital generally will be asked to pay more taxes (as human capital accumulation is typically positively correlated with earnings). Sadka and Tanzi (1993) suggest that this disincentive may be eliminated through appropriate tax deductions for investment in human capital.¹⁰

But this disincentive effect on human capital accumulation is present not only for taxes falling on potential income but also for taxes on actual earned income. If an individual acquires

⁹ See the discussion in Sadka and Tanzi (1993).

¹⁰ See also the discussion in Judd (1998) for expensing education as a capital investment.

human capital, in the future he or she will have to pay higher taxes either on potential or actually earned income, although in the latter case taxes will accrue only when and if the individual decides to work. Therefore, the effects on human capital accumulation are likely to have different effects on capital accumulation depending on the individual's plans about work in the future and attitudes toward risk. For example, individuals who are uncertain about how much they will use their acquired human capital skills in the future (e.g., whether they will work, etc.) are likely to be more discouraged in acquiring human capital under a potential income tax than under an earned income tax.¹¹ On the other hand, for individuals that are more certain about their intentions to use their human capital skills, a tax on potential could be less discouraging for the accumulation of physical capital than a tax on earned income.

The literature on the effect of income taxation on human capital accumulation is inconclusive.¹² An income tax may have a positive, neutral, or negative effect on investments in human capital relative to physical capital depending on several critical assumptions. Eaton and Rosen (1980) show that under certainty, a proportional earnings tax has no effect on human capital accumulation. When the return to human capital is uncertain, an earnings tax may increase or decrease investment in human capital depending on the attitudes toward risk.¹³ In certain cases, the efficient earnings tax may exceed zero when compared to an alternative lump-sum tax. However, there is evidence to support the presumption that human capital is discouraged by earned income taxation. For example, Trostel (1993) uses a general equilibrium model to show that a proportional income tax discourages investment in human capital and Nerlove et. al. (1993) use an overlapping generations model to show that a comprehensive income tax (applied to labor and capital income) has a negative effect on human capital accumulation relative to physical capital.

Although inconclusive, based on the literature it may be fair to presume that under relatively common conditions, a tax on earned income may be expected to reduce investment in human capital. If this conclusion is correct, it does seem intuitive to expect that taxes on potential income also discourage investment in human capital. However, what is different with a tax on potential income is that those who use their human capital over the norm, that is, for whom actual income exceeds potential income, will be compensated more highly the higher is their human capital. It is this effect that may lead to higher accumulation of human capital. But as noted above, the overall impact may also depend on attitudes toward risk. If uncertainty is involved in anticipating actual income (or the calculation of potential income under the tax law), any negative impact of the potential income tax on human capital accumulation could be more significant the higher the degree of risk aversion.

While there has been some level of discussion on the efficiency issues related to potential income taxation based on human capital, the equity effects of a potential income tax have received much less attention. It is helpful to differentiate between the two conventional concepts

¹¹ Note that there is an element of efficiency in the discouragement of acquiring human capital by individuals who have no clear plans or intentions of using that capital. There is always an opportunity cost for society in providing skills and education to individuals that later on do not use them.

¹² There is no empirical literature on the most pertinent question to us, which is, what is the impact of a tax on the potential income on the accumulation of human capital. Of course, this is due to the fact that there have been very few experiments with taxes on potential income. Some examples are discussed below.

¹³ See Sgontz (1982) for similar discussion and finding for the case of a progressive income tax.

of horizontal and vertical equity in this discussion of a potential income tax.

In the case of horizontal equity, a tax on potential income would treat people with the same level of human capital attainment (or potential income) as equals independent of their actual earned incomes. The application of the horizontal equity principle to earned income in contrast requires equal treatment for the same earned income regardless of the differences between potential incomes among taxpayers.¹⁴ It is here where the fundamental philosophies behind the two approaches to income taxation become perfectly clear. Although horizontal equity under potential income could be argued to be fairer,¹⁵ one may have to decide which principle is more practical. It is on practical grounds that the earned income criterion has been always thought to have the advantage. But even here, where there are high levels of tax evasion with uneven opportunities to hide actual income, a potential income approach may offer some advantages. It is in this sense that Tanzi and Casanegra (1987) argue that presumptive taxation may improve horizontal equity: since employees of large companies are more likely to be taxed than the self-employed, the use of presumptive taxes on self-employed occupations may improve equity.

From a vertical equity viewpoint, depending on how the tax system were to be designed, the ability to pay principle would require that people with more potential income (or higher levels of human capital attainment) be taxed at a higher rate. Here again the frame of reference for defining vertical equity matters. A change to a tax based on potential income may look less fair when analyzed from an earned income perspective. That in fact is just one of the main points of our analysis. If the current tax system based on earned income encourages individuals to work below their potential, they will be taxed at lower rates. In contrast, a tax on potential income could increase the equity of the tax system by taxing an imputed or derived base level of income (at flat or progressive rates) while allowing additional work effort and earnings to go untaxed. Thus, the application of the ability to pay principle under the potential income tax would increase rates for those with higher earnings potential (thus preserving vertical equity) and not necessarily for those that earn more because they exercise higher level of effort. The benefit to working more than the average therefore accrues to both low and high potential income individuals, although, admittedly, a progressive rate structure will yield a larger marginal benefit to high potential income individuals working above the average.¹⁶

In terms of administration and compliance costs, it would seem that a potential income tax would have large set up or learning-curve costs, but that once established it would be far simpler to administer and enforce and it could also represent lower compliance costs for taxpayers, especially if the tax were coupled with a source-based capital assets tax. Part of the ease of administration comes from the fact that individuals would no longer have to report actual income. However, the administration would require information regarding human capital and

¹⁴ There is some debate regarding the “principle” of horizontal equity, but most scholars contend that the equal treatment of “equals” is a laudable goal of tax policy (see Cordes, 1999 for a summary of this debate).

¹⁵ For example, the same earned income for two individuals may come from very different levels of earning capacities (human capital) and very different levels of effort. Levying the same tax on two individuals with the same earned income when one of them may have had to work twice as hard and long to obtain that same earned income does not appear to be fair.

¹⁶ Over time, working above average could raise the calculated average potential income for certain human capital characteristics.

other personal attributes. The ease of administration and reduced compliance costs indeed are the advantages of presumptive income taxation over regular earned income taxes. In short, many of the administrative advantages of presumptive income taxation transfers to the more theoretically sound potential income tax.

The overall advantage of a potential income tax over the earned income tax is the more efficient use of labor resources in the economy which should lead to higher rates of economic growth. This is so because with the potential income tax the underutilization of human capital would be penalized and work effort above general standards would not be penalized. In contrast, with an earned income tax system, underutilization of human capital is ignored and work effort above average standards gets penalized. In addition, even if it is true that a potential income tax may discourage the accumulation of human capital, there should be much less “waste” in the investment choices in human capital. This latter should also lead to a more efficient use of scarce societal resources and compensate for any negative effects on economic growth from lower human capital accumulation. Potentially, the most difficult administrative aspect of such a tax is keeping track of the stock of human capital. We now turn to a discussion of measurement of potential income.

III. Using human capital theory to measure potential income

The key to developing a potential income tax is to objectively measure potential income. In many ways the problem of measuring potential income is similar to that of measuring imputed income for a presumptive tax.¹⁷ Currently used presumptive tax systems have utilized a variety of methods to establish the tax base including gross asset value (Colombia, Argentina), indicators of economic activity (Greece), and the *forfait* system which attributes presumptive income based on occupation. These approaches each have an element of taxing a base of potential income, but are not readily applied to individuals. Recently, Haveman, Bershadker and Schwabish (2003) present an appealing theory of earnings capacity as an “estimator of the potential annual rental value of the stock (of human capital)” (p. 77). Similar to a capital asset, earnings capacity is therefore an estimate of the market value of human capital—or a measure of potential income.¹⁸

Haveman et. al.’s (2003) methodology focuses on the relationship between human capital characteristics and market productivity where market productivity is reflected in observed earnings, as would be done to value a capital asset. They begin the estimation of earnings capacity (EC) by assuming that a full-time, full-year level of activity (labor) is the norm for which to estimate EC. Using actual earnings of all full-time, full-year employed individuals, they ultimately estimate the EC of all working-age individuals. The authors point out that their methodology provides a gross measure of value (social costs of employment are not subtracted) and that their measure does not fully capture non-market activity such as leisure, home production, and volunteering (p. 79). Assuming a competitive labor market with perfectly elastic short run labor demand functions, they can estimate the EC for the entire working-age

¹⁷ Presumptive income is a measure of potential income but only for those that are at the present time working.

¹⁸ Mulligan and Sala-i-Martin (1995) and Barro and Lee (1993) also construct aggregate measures of human capital accumulation for states and countries respectively.

population, whether or not they are fully engaged in labor activities at the time of analysis. They introduce uncertainty by including a random shock in the estimation procedure to reflect unexplained differences in earnings among individuals. Individuals' earnings capacities are aggregated to derive a comprehensive (dollar) measure of the productive capacity of the nation's human capital.

Utilization rates of human capital are also examined by Haveman et. al.'s (2003). They measure actual utilization of earnings capacity as a share of potential earnings capacity. As of 2000, male utilization was higher than female (81 percent for males and 61 percent for females). Not surprisingly, the ratio of male to female utilization rates fell dramatically between 1975 and 2000 as more women entered the labor force. The authors estimate that the unused capacity in the US was worth \$1.4 trillion in 2000. However, they find that about 35 percent of that unused capacity in 2000 is due to involuntary causes such as illness and involuntary unemployment). Even subtracting \$480 billion from the unused capacity translates into a large potential revenue effect. At a flat 20 percent tax rate on potential income, the voluntary unused capacity was worth, by our estimates nearly \$96.5 billion—or about 10 percent of total US federal individual income tax revenue in 2000.

There are other measures of potential income that exist in the literature. Plug, van Pragg and Hartog (1999) construct an example of a tax based on earnings capacity using observable characteristics of individuals – IQ, and level of schooling. Using a dataset consisting of individuals interviewed as 12-year-old school children in 1952 and re-interviewed in 1993, they are able to predict earnings capacity and examine the effects of a tax on earnings capacity under various definitions of sacrifice relative to actual taxes. Mincer's (1974) hedonic wage equation, which estimates the market value of various individual characteristics on market wages, is another approach. In the next section, we use a methodology similar to that of Haveman et al. (2003) as an example of calculation of a potential income based tax. We also use the estimates of Haveman et al. to simulate the revenue impact of a potential income based tax and compare the results.

An example of human capital-based tax

Although individuals' human capital may be considered a good indication of their ability to pay taxes, making the concept operational can be difficult, as seen in the Haveman et al's analysis. The most widely used measure of an *individual's* human capital accumulation is Mincer's (1974) wage equation. Here we adapt Mincer's methodology to calculate an individual's potential wage given his or her human capital characteristics. This approach fits generally with that used by Haveman et al. (2003) but we do not add a random shock component to add the effects of unobservables such as luck or motivation. In our method, we calculate gross wages for the working age population in a given year. With this methodology, potential wage income is an average wage based on the characteristics of workers and non-workers. The goal of this exercise is to provide an example of how potential income can be calculated using existing data and to explore empirically the equity and efficiency effects of an income tax system that is based on potential income relative to the current system based on earned income. We also provide an estimate of the welfare cost associated with moving to a potential income-human capital based tax. Finally, we compare the results of our model with our simulated tax results

using the EC estimates of Haveman et al.

This is how we proceed empirically. We use data from the 1990 Current Population Survey (CPS) to calculate an implicit hourly wage^{for} workers aged 17 - 64^{in the sample.}¹⁹ The wage is calculated based on the reported data in the CPS regarding weekly earnings and hours worked per week. Using this hourly wage, $w^{e\text{then}}$ estimate^{a wage equation based on personal, locational, and occupational characteristics} for all individuals aged 17-64 (workers and non-workers): We estimate a hedonic wage model using a two-stage procedure to control for self-selection into the labor force, with the natural log of hourly wages as the dependent variable. A probit model of labor force participation is used to calculate the inverse mills ratio, which is then used in the second stage to correct the potential wage equation for sample selectivity bias.²⁰ Table 1 presents descriptive statistics for the data.

The parameter estimates from the wage equation (Table 2) are used to calculate a potential wage for each individual in the sample. This potential wage measures the market valuation of an individual's human capital attainment. Individual potential wages are multiplied by the CPS sample weighted average hours worked per week (38.65) and weeks worked per year (44.92) to get potential wage and salary income for each individual. Potential income is aggregated across families to get a potential wage and salary income for each family based on the human capital characteristics of each member.²¹ A tax calculator based on the 1990 federal tax law is used to determine the family's federal tax liability on wage income only, based on potential income as a measure of human capital attainment. We also calculate the 1990 tax liability on reported wage income. We aggregate individual potential wages into family potential wages because the income tax system in the U.S. is based on family income. Single filers are treated as such. A family's potential tax burden is calculated as the ratio of a family's tax liability (from potential wages) to the family's potential comprehensive income²². We then calculate an average tax burden by potential comprehensive income group for workers and non-workers. We also calculate the tax burden under a revenue neutral flat rate tax system.²³

19 The implicit hourly wage is defined as total wage and salary income divided by the product of weeks worked times hours worked per week. Any CPS data file could be used. 1990 was a choice of convenience that enabled us to use the full Census information in case we had any questions or concerns regarding the CPS sample. As 1989-90 was a relatively quiet tax year in US tax policy, we believe that our data are less susceptible to transition activities with respect to income and labor supply.

20 Labor force participation is the dependent variable in the probit model and the independent variables are: education, age, age squared, age interacted with education, dummy variable for MSA, dummy variable for sex of person, race of person, veteran status, dummy variable for spouse present, dummy variable for whether a person is currently in school, number of children, interaction of sex and kids, total nonlabor income, and dummy variables for region.

21 Again recall that income from capital, rent, interest, and dividends is not considered in this analysis.

22 Potential comprehensive income = potential wage and salary income + social security + welfare benefits + veteran's benefits + survivor benefits + disability benefits. Potential comprehensive income = estimated family income from the wage equation + social security + welfare benefits + veteran's benefits + survivor benefits + disability benefits.

23 The flat tax rate case is chosen because of its convenience to calibrate the revenues. However, it needs to be noticed that the choice of this tax nevertheless has implications for the comparison of welfare effects of the different tax regimes. A flat rate income tax, *ceteris paribus*, is associated with lower excess burdens. Therefore, the efficiency gains associated with the switch to a potential income tax base are understated vis-à-vis the more common case of a progressive rate structure.

To analyze the change in excess burden from the use of the potential income tax, we use the methodology developed in Harberger (1974) and Browning (1985, 1987)²⁴: Let

$$W = \frac{1}{2} \eta \frac{m^2}{1-m} w L$$

where

m = marginal tax rate under the current income tax system

η = compensated labor supply elasticity

w = net wage under the current income tax

L = labor supply under the current income tax.

In the context of the labor supply decision, assigning a tax to an individual/family based on their human capital attainment is similar in the short run to a head tax. An individual would pay the same amount of income tax regardless of their work behavior, so the tax does not influence an individual's allocation of work and leisure in the short run. Therefore, the potential income tax is, at least in the short run, an efficient tax because its excess burden is zero. Therefore, switching to an income tax system based on potential income would remove the distortions caused on the labor/leisure choice under the current income tax system. The individual/family would gain back the welfare that they lost at the time the current income tax system, based on actual income, was introduced.²⁵

However, as discussed above a potential income tax may lead to less investment in human capital in the long-run. We are uncertain about the nature and size of these distortions in the long run. Therefore, the possible excess burdens of the potential income tax through its effects on human capital are not accounted for in our comparison. On the downside, this makes the potential income tax look better than is warranted. However, since actual income is a function of on-the-job productivity, while tax liability is a function of potential income, individuals would see gains from "above average" work effort, and these gains could mitigate the incentive to reduce human capital accumulation.

The results for the wage equation are similar to those found in a number of other studies.²⁶ Education and age positively and significantly affect wages, but the impact of age is reduced over time. Controlling for human capital factors, labor markets in different parts of the country affect wages differently. Compared to the West, the South and Midwest regions have lower wages, with higher premiums paid in the Northeast. Veteran status yields a higher wage and individuals with spouses receive higher wages.

²⁴Feldstein (1995) derives an alternative measure for the deadweight loss of a tax system that replaces the compensated labor supply elasticity and labor income with the compensated elasticity of taxable income and non taxable income, respectively.

²⁵ There are obvious complications due to the fact that the current tax system is not a first-best world and individuals have made decisions regarding labor, leisure and human capital investment based on a system that imposes a variety of distortions.

²⁶ For example, see Becker (1964), Mincer (1974), and Idson and Feaster (1990). It is interesting to note the consistency of results such as the return to education and experience (age) over a long history of hedonic wage models. We estimate the wage relationship for 1990, a relatively stable period of time in terms of federal tax policy. In 1990, the top marginal income tax rate was 33 percent compared to 70 percent or more in the 1960s. If taxes were capitalized into wages, we might expect very different results in terms of the return to education and experience (measured in our model via the variable age) and other factors in these hedonic models.

The data in Table 3 show the average tax burden calculations under the current federal income tax system and a tax system based on human-capital attainment. Families are assigned an income group based on comprehensive income calculated using their potential wage. Columns 3 and 4 show average tax burdens for current workers while columns 6 and 7 show average tax burdens for workers and non-workers. Column 3 is the benchmark case and shows the average tax burden for current workers under the 1990 (current) federal income tax system. The current income tax on wage income is somewhat flat, with average tax burdens for families from the lower to upper income groups around 14 percent of income. In contrast, a tax on potential wage income, using the 1990 tax schedule, is relatively progressive. If we look at workers and non-workers (columns 6 and 7), the tax on potential income has a smoother progression than the tax on actual wage income.

The revenue of a tax on potential wage income was somewhat smaller than the actual tax on wages in 1990. We introduce a revenue neutral flat tax at a rate of 17.9 percent of potential wage income as a revenue neutral potential income tax. The results of this simulation are shown in column 4 of Table 4.²⁷ The flat tax decreases the average tax burden at lower income levels (below \$25,000) and leads to a relatively flat distribution of average tax burdens over the remainder of the income groups. The average tax burden for the highest income group is actually higher under a flat tax.

Under a tax on potential income, individuals are not penalized for undertaking a greater than average work effort. The current income tax system discourages work since additional earnings may be taxed at a higher rate. Therefore, one measure of the welfare change to working families under a tax based on potential income from human capital is equal to the welfare loss under the current income based tax system. The welfare changes are shown in Table 5. The calculation in column 3 uses a compensated labor supply elasticity of 0.2 while the calculation in column 4 uses a compensated labor supply elasticity of 0.5. The average welfare change is calculated as excess burden as a portion of potential comprehensive income. The calculations show that welfare improvements range from 0.1 percent to almost 0.6 percent of potential income.

Comparisons of our operationalized potential income tax with Haveman et al. is a bit difficult as we do not have the coefficient estimates the author's used to calculate total potential income. However, we can put their analysis into the income tax context by making a few assumptions. For 1990 (our comparison year), the authors estimate a capacity utilization rate of 0.66 percent—implying that, if a potential income base was used for tax purposes, the wage portion of the base could expand by 34 percent. In 1990, the IRS reports that wages were \$2.6 trillion reported for tax purposes. We understand that this does not represent total actual wages in 1990, but we use it as the base for this simulation—assuming some non-compliance would continue under a potential income tax.²⁸ The NBER reports an average marginal tax rate on

²⁷ Marginal tax rates under the 1990 income tax system range from 15 to 33 percent.

²⁸ According to Haveman et. al.'s estimates, total earnings capacity in the U.S. in 1990 was \$4.897 trillion (in 2000 dollars) which would be about \$3.342 trillion (in 1990 dollars), 30 percent more than the taxable wage base of \$2.6 trillion.

wage income of 21.96 percent in 1990. If we apply the 34 percent increase in wages to the \$2.6 trillion taxable wage base, at the average marginal tax rate of 21.96 percent, Haveman et al's estimate of potential income could yield an increase in income tax revenue of 34 percent in 1990 levels, which suggests that their calculation of potential income yields a larger tax base than our estimate.

IV. Challenges to the implementation of potential income taxes

The actual implementation of a potential income tax would be subject to a number of challenges. The question is whether the implementation of a potential income tax may produce results superior to those obtained under the conventional earned income tax. From this perspective, in considering the challenges to be faced in the implementation of a potential income tax, it is useful to contrast them with the challenges commonly faced in the implementation of conventional income taxes.

First, there are some information challenges. Getting individuals to reveal potentially unobservable attributes such as education or work experience may be difficult. But information on these attributes may not be harder to obtain than information on certain types of income. The same way that conventional taxes on earned income use withholding and information schemes to provide the tax administration authorities with the means to audit returns, one can think of information schemes where education institutions could provide information on degrees and employers could provide information on years of employment. Personal characteristics such as age, marital status, number of children, etc. may be provided via secondary data such as the social security administration.

Second, there is a question on the proper scope of the potential income tax. Under what circumstances would a potential/presumptive based income tax be appropriate, or more appropriate than a conventional tax on earned income? From an administrative/compliance perspective the earned income tax on salaried workers may be easier to implement because of withholding schemes. However, one could also envision the same withholding schemes working for the potential income tax. In this case of the potential income tax, the amount to be withheld by employers would be based on the information provided by the tax authorities for each employee rather than on the amount of earned income paid to each employee. The advantages of the potential income tax are clearer for taxing the self-employed. A weak point of the earned income tax has always been (especially in developing but also generally in developed countries) the poor compliance record of the self-employed. In the case of the potential income tax it would be possible to do away with all the expensive monitoring and audit programs associated with taxing the self-employed under a conventional earned income tax.

Third, we need to ask whether the wholesale substitution of one type of tax for the other is necessary or whether the two approaches could be implemented at the same time either for the same taxpayer or for different categories of taxpayers. Rather than a wholesale substitution, it may be more realistic (politically acceptable etc.) to mix the use of the two approaches. This could mean a much more frequent and intensive use of presumptive taxes than it is now the case in most tax systems around the world. Parallel systems of taxation of actual income and potential

income could be devised moving individuals between presumption and tax on actual income according to the type of employment characteristics and types of jobs. Alternatively, personal income taxation could be structured into a potential income tax based on human capital characteristics and a second part based on actually earned income. This approach may provide adequate flexibility to take into account administration and compliance costs, opportunities for tax evasion, and so on. A combination of the two approaches could also be optimally designed to minimize excess burdens and negative incentives to the accumulation of human capital.

Fourth, the imputation method for a potential income tax comes with the attributes of the labor market. This represents both an opportunity and a challenge. For example, if discrimination against women or minorities makes its way into the actual wages paid, then this discriminatory impact will come through the estimated coefficients and potential income estimates. Thus the potential income tax could considerably adapt to labor market conditions. On the other hand, fully capturing the results of segmented market conditions should not be easy. If these practices in the labor market are reduced or increased in scope, the wage equations will need to be re-estimated. How often could/should that be done is yet another question, but clearly a complication for the implementation of a potential income tax.

Fifth, how to evaluate effectiveness of the potential income tax is not entirely straightforward. There is little doubt that one such basis should be revenue potential. We saw above that in the case of our methodology, a relatively simple flat rate income tax of 17.9 percent on potential income would have been revenue neutral relative to the tax law in 1990. Using Haveman et al. (2003), the revenue potential of a tax on potential income is greater, likely due to their addition of full-time employment and the uncertainty parameter that they use in their empirical model. A different basis for evaluating the potential income tax would be the computation of excess burden losses and their comparisons with those arising in the case of earned income taxes. This is a task beyond the scope of the current paper. But, as mentioned above, we would expect the excess burden losses associated with a particular level of revenues would be considerably lower for the potential income tax.

Sixth, there are many important implementation details that would definitely affect the political acceptability of a potential income tax. For example, who would be exempt from the potential income tax and what personal conditions may affect its full application? What would be the proper way to treat the (involuntarily and voluntarily) unemployed, parents with young children in need of care, and so on? The political acceptability of the potential income tax will require significant further exploration. It would seem that presumptive taxes are not very unpopular in developing countries, but this is so in part because they are small in size. There is no question that the serious introduction of this type of taxation in developed market economies, such as in the case of the U.S. would be much more problematic. Tax reform is never easy, even when what is at issue is the fine-tuning of the present system. The introduction of a potential income tax would represent a more radical form of tax reform, requiring much more public discussion and taxpayer education.

V. Conclusions

The goal of this paper has been to bring together two unconventional approaches to taxing individual income, the potential income tax and presumptive income taxation. In this paper we argue that the combination of two approaches considerably increases the attraction of each of the separate concepts; in particular a presumptive taxation perspective transforms the potential income tax into a more operational concept while a potential income tax perspective provides strong theoretical justification to presumptive income taxes. The paper also illustrates how a potential/presumptive income tax could be implemented for labor income.

The overall advantage of a potential income tax over the earned income tax is the more efficient use of labor resources in the economy which should lead to higher rates of economic growth. This is so because with the potential income tax the underutilization of human capital would be penalized and work effort above general standards would not be penalized. In contrast, with an earned income tax system underutilization of human capital is ignored and work effort above average standards gets penalized. In addition, even if it is true that a potential income tax may discourage the accumulation of human capital, there should be much less “waste” in the investment choices in human capital. This latter should also lead to a more efficient use of scarce societal resources and compensate for any negative effects on economic growth from lower human capital accumulation.

We find that a potential income tax is welfare enhancing, in the case of a switch from the current US tax system to one based on potential income levied at a flat income tax rate of 17.9 percent. Using the earnings capacity calculation of Haveman et al. (2003) we show that, according to their estimates, a potential income tax could yield substantial increases in income tax revenue. In addition, a tax on potential income may have some favorable attributes based on equity considerations since self employed occupations will be less able to avoid taxation. The difficulty that remains with the potential income tax is guaranteeing consistent and up to date information on the factors that affect actual wages—those used in the hedonic model of wages to estimate potential income as the income tax base. There are also many important details in the implementation of a potential income tax, such as how to tax the “voluntarily unemployed” that would affect not only its efficiency properties but also its political acceptability.

The discussion in this paper mostly has focused on the taxation of capital income with a potential income tax. Future research should address how to combine potential income taxation of labor and capital for a more balanced comprehensive treatment of all income. As we have pointed out in the paper, the taxation of potential income from physical capital assets already exists in different forms in many tax systems, as for example in the case of real estate property taxes or asset taxes of corporations. However, expanding this concept to enterprise income may prove quite difficult. One could define the ordinary rate (however calculated) of return on firms’ assets as their potential income; but, in general we would expect potential firm’s income to be affected by particular market conditions, such as the degree of competition, that would not be easily quantified.

Tables

Table 1: Variable Description and Summary Statistics (workers and non-workers)

Variable	Description	Mean	Standard Deviation
Hourly wage (workers only)	Dependent variable constructed from reported data on wage and salary income, hours worked per week, and weeks worked per year		1.69
Labor Force Participation	=1 if individual is in the labor force =0 if individual is not in the labor force	0.71	0.45
Education	Years of Education	12.55	3.02
Age	Limited to persons between 17 and 65 years of age	43.82	18.07
Sex	=1 if person if female =0 otherwise	0.53	0.49
Race	=1 if minority =0 if white	0.12	0.33
Veteran	=1 if person if a veteran =0 otherwise	0.14	0.35
Spouse	=1 if person is married =0 otherwise	0.59	0.49
North East	=1 for persons living in the north east =0 otherwise	0.29	0.45
Midwest	=1 for persons living in the mid-west =0 otherwise	0.28	0.45
South	=1 for persons living in the south =0 otherwise	0.36	0.48

Table 2: Wage Equation Results for Workers

VARIABLE	COEFFICIENT	ADJUSTED STANDARD ERROR
Intercept	0.1013	0.038
Education	0.0523	0.002
Age	0.0570	0.001
Age Squared	-0.65E-01	0.015E-03
Age * Education	0.49E-01	0.058E-03
MSA	0.1770	0.005
Sex	-0.2837	0.005
Race	-0.0826	0.006
Veteran	0.0582	0.006
Spouse	0.1050	0.004
Northeast	0.0603	0.006
Midwest	-0.0397	0.006
South	-0.0778	0.005
Inverse Mills Ratio	0.05303	0.014
Adj. R sq. 0.335	Obs. 70,112	

Table 3: Tax Burdens Grouped by Potential Comprehensive Income

1	2	3	4	5	6	7
Potential Comprehensive Income Group	Number of Families	Average Tax Burden Actual Tax Liability / Potential Comprehensive Income Workers	Average Tax Burden Potential Federal Tax Liability / Potential Comprehensive Income Workers	Number of Families	Average Tax Burden Actual Federal Tax Liability / Potential Comprehensive Income Workers and Non-workers	Average Tax Burden Potential Federal Tax Liability / Potential Comprehensive Income Workers and Non-workers
0 to 5,000	5	0.03782	0.00641	10	0.01892	0.00384
5,000 to 10,000	629	0.09982	0.04677	906	0.07548	0.04313
10,000 to 15,000	3480	0.14446	0.07828	4425	0.12210	0.07484
15,000 to 20,000	3728	0.15282	0.09386	4945	0.12325	0.08701
20,000 to 25,000	4193	0.12472	0.08917	5531	0.10243	0.08325
25,000 to 30,000	4999	0.11564	0.09612	6388	0.09663	0.09080
30,000 to 35,000	5369	0.12294	0.10348	6642	0.10631	0.10009
35,000 to 40,000	4773	0.13427	0.10838	5848	0.11731	0.10437
40,000 to 45,000	3812	0.14127	0.11615	4672	0.12416	0.11203
45,000 to 50,000	2809	0.15050	0.12430	3478	0.12993	0.11910
50,000 to 60,000	3262	0.15505	0.13913	4187	0.13038	0.12960
60,000 to 70,000	1386	0.14710	0.15033	1852	0.12121	0.13554
70,000 to 100,000	951	0.13086	0.15529	1484	0.09270	0.12335
over 100,000	123	0.08855	0.12142	321	0.03638	0.06469
All income groups	39,519	0.13536	0.10610	50,689	0.11345	0.09960

Table 4: Tax Burdens Grouped by Potential Comprehensive Income for a Revenue Neutral Flat-Rate Tax on Potential Income

1 Potential Comprehensive Income Group	2 Number of Families	3 Average Tax Burden Actual Tax Liability / Potential Comprehensive Income Workers and Non-workers	4 Average Tax Burden with Flat Tax Potential Tax Liability / Potential Comprehensive Income Workers and Non-workers
0 to 5,000	10	0.01892	0.0046
5,000 to 10,000	906	0.07548	0.05146
10,000 to 15,000	4425	0.12210	0.08931
15,000 to 20,000	4945	0.12325	0.10383
20,000 to 25,000	5531	0.10243	0.09882
25,000 to 30,000	6388	0.09663	0.10481
30,000 to 35,000	6642	0.10631	0.11402
35,000 to 40,000	5848	0.11731	0.11949
40,000 to 45,000	4672	0.12416	0.12505
45,000 to 50,000	3478	0.12993	0.12582
50,000 to 60,000	4187	0.13038	0.12574
60,000 to 70,000	1852	0.12121	0.12203
70,000 to 100,000	1484	0.09270	0.10461
over 100,000	321	0.03638	0.05372
All income groups	50,689	0.11345	0.10994

Table 5: Marginal Welfare Change for Families Resulting from a Tax on Human Capital

1	2	3	4
Potential Comprehensive Income Group	Number of Families	Average Welfare Change Excess Burden1/Potential Comprehensive Income Workers	Average Welfare Change Excess Burden2/Potential Comprehensive Income Workers
0 to 5,000	5	0.00113	0.00282
5,000 to 10,000	629	0.00383	0.00958
10,000 to 15,000	3480	0.00585	0.01461
15,000 to 20,000	3728	0.00524	0.01309
20,000 to 25,000	4193	0.00447	0.01118
25,000 to 30,000	4999	0.00357	0.00893
30,000 to 35,000	5369	0.00344	0.00859
35,000 to 40,000	4773	0.00384	0.00961
40,000 to 45,000	3812	0.00406	0.01015
45,000 to 50,000	2809	0.00409	0.01021
50,000 to 60,000	3262	0.00447	0.01117
60,000 to 70,000	1386	0.00362	0.00905
70,000 to 100,000	951	0.00308	0.00770
over 100,000	123	0.00163	0.00408
All income groups	39,519	0.00419	0.01049

Note: The first measure of excess burden uses $\eta = 0.2$ while the second measure of excess burden uses $\eta = 0.5$.

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