

**International Studies Program
Working Paper 07- 10
June 2007**

**Using Human Capital Theory to
Establish a Potential Income Tax**

Dagney Faulk
Jorge Martinez-Vazquez
Sally Wallace



**International Studies Program
Working Paper 07- 10**

**Using Human Capital Theory
to Establish a Potential Income Tax**

**Dagney Faulk
Jorge Martinez-Vazquez
Sally Wallace**

June 2007

International Studies Program
Andrew Young School of Policy Studies
Georgia State University
Atlanta, Georgia 30303
United States of America

Phone: (404) 651-1144
Fax: (404) 651-4449
Email: ispaysps@gsu.edu
Internet: <http://isp-aysps.gsu.edu>

Copyright 2006, the Andrew Young School of Policy Studies, Georgia State University. No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means without prior written permission from the copyright owner.

International Studies Program Andrew Young School of Policy Studies

The Andrew Young School of Policy Studies was established at Georgia State University with the objective of promoting excellence in the design, implementation, and evaluation of public policy. In addition to two academic departments (economics and public administration), the Andrew Young School houses seven leading research centers and policy programs, including the International Studies Program.

The mission of the International Studies Program is to provide academic and professional training, applied research, and technical assistance in support of sound public policy and sustainable economic growth in developing and transitional economies.

The International Studies Program at the Andrew Young School of Policy Studies is recognized worldwide for its efforts in support of economic and public policy reforms through technical assistance and training around the world. This reputation has been built serving a diverse client base, including the World Bank, the U.S. Agency for International Development (USAID), the United Nations Development Programme (UNDP), finance ministries, government organizations, legislative bodies and private sector institutions.

The success of the International Studies Program reflects the breadth and depth of the in-house technical expertise that the International Studies Program can draw upon. The Andrew Young School's faculty are leading experts in economics and public policy and have authored books, published in major academic and technical journals, and have extensive experience in designing and implementing technical assistance and training programs. Andrew Young School faculty have been active in policy reform in over 40 countries around the world. Our technical assistance strategy is not to merely provide technical prescriptions for policy reform, but to engage in a collaborative effort with the host government and donor agency to identify and analyze the issues at hand, arrive at policy solutions and implement reforms.

The International Studies Program specializes in four broad policy areas:

- Fiscal policy, including tax reforms, public expenditure reviews, tax administration reform
- Fiscal decentralization, including fiscal decentralization reforms, design of intergovernmental transfer systems, urban government finance
- Budgeting and fiscal management, including local government budgeting, performance-based budgeting, capital budgeting, multi-year budgeting
- Economic analysis and revenue forecasting, including micro-simulation, time series forecasting,

For more information about our technical assistance activities and training programs, please visit our website at <http://isp-aysps.gsu.edu> or contact us by email at ispaysps@gsu.edu.

Using Human Capital Theory to Establish a Potential Income Tax

Dagney Faulk*, Jorge Martinez-Vazquez **, and Sally Wallace **¹

**Department of Economics, Indiana University Southeast*

***Department of Economics, Andrew Young School of Policy Studies, Georgia State University*

June 17, 2007

Abstract:

There are good arguments for an individual income tax on “potential income”, but the drawback to such a tax is the significant administrative concern regarding the implementation of the tax. This paper argues that human capital theory provides a widely accepted and straightforward method to estimate “potential income” using observed characteristics of individuals, and operationalizes this approach using data for the U.S.A. The paper also suggests that a “potential income tax” is very similar to a “presumptive income tax.” The paper concludes by reviewing some significant problems with the implementation of a potential/presumptive income tax.

JEL Classification: H2, J24

Key words: presumptive tax, potential income tax, human capital

¹ We would like to thank James Alm, Robert Haveman and Mark Rider and for helpful comments on this paper; of course, any remaining errors are entirely ours. We are grateful to Robert Haveman, Andrew Bershader, and Jonathan Schwabish for supporting us with their regression data.

1. Introduction

For several decades now there have been arguments for imposing the individual income tax on a “potential income” base. The apparent main drawback to such a tax is the significant administrative concern regarding the actual implementation of the tax; that is, can an effective way be found to estimate “potential income”? In this paper we argue that human capital theory provides a widely accepted and straightforward method to estimate “potential income” using observed characteristics of individuals, and we go on in the paper to operationalize the approach using data for the U.S. We also suggest that the use of such observed characteristics to generate the estimates means that essentially a “potential income tax” is very similar to a “presumptive income tax.” Nevertheless, we also review some of the significant problems we still face with the implementation of a potential/presumptive income tax.

Several generations of economists have discussed the possibility of potential income taxes. The advantage 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 work harder because potential income would not be affected by actual work effort. Indeed, a potential income tax would provide positive incentives to use human capital assets, quite like land taxes provide incentives for putting that resource to its highest and best use.² As summarized by Sadka and Tanzi (1993), Einaudi noted in 1938 that such a tax (based on what he called “average income”) encourages productive activity above the average. In the case of labor supply, average

² These are similar to the benefits of land value taxation originally argued by Henry George (1904). For more recent discussions of land value taxation see Vickery (1999), Tideman (1982), and Wildasin (1982) among others.

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, potential income taxes may not be free of creating different kinds of distortions. In particular, if potential income is measured on the basis of human capital characteristics, there is a possibility that taxing potential income may introduce negative incentives to the accumulation of human capital that are larger than exist under a tax on earned income. In addition, potential income taxes may pose some difficult equity dilemmas related to, for example, stay-at-home parents or individuals working for humanitarian organizations. These difficulties are explored further below.

An income tax based on potential labor income can be looked at as representing a kind of presumptive method of taxation, where the tax base (potential income) is estimated by analyzing the market value of a set of personal characteristics, such as education, experience, gender, or regional location. However, it is often the case that potential income can depend also on hidden or unobservable characteristics, such as the IQ of individuals. The issue then becomes whether in such cases the concept of potential income is rendered impractical,³ or may still be useful by measuring potential income on the basis of observable characteristics. Using observable characteristics to arrive at some measure of tax liability is, of course, at the core of presumptive methods of taxation.

Presumptive taxation has been defined in various ways. For example, Balestrino and Galmarini (2005) define presumptive taxation as “indirect methods...used for evaluation of the effective tax base and computing the corresponding tax liability.” Slemrod and Yitzhaki (1994) point out that “[a]ll taxes are presumptive, to some degree.”

³ Mirrlees (1971) in his classic paper on optimum income taxation dismisses the concept of potential income on this basis.

Ahmad and Stern (1991) explain presumptive taxation as a “...number of procedures under which the ‘desired’ base for taxation (direct or indirect) is not itself measured but is inferred from some simple indicators which are more easily measured than the base itself.” Bird and Wallace (2004) refer to presumptive taxation from the administrative perspective, whereby tax administrators apply taxes to bases that they determine as opposed to bases determined by the taxpayer. To make a presumptive tax operational, tax administrators must posit some measure of the potential, or underlying, true tax base.⁴

Although presumptive tax methods are used all around the world, in reality, no country has introduced a full potential income tax system.⁵ However, most tax systems have elements of potential income taxation. Besides presumptive income taxes, certain asset taxes, most importantly market-valued property taxes, can be thought of as a potential income tax on real estate.⁶ In addition, many countries use an estimated income methodology to tax small businesses (Bird and Wallace, 2005). Presumptive taxes are 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-measured income. This statement is quite likely still valid today.

The rest of the paper is organized as follows. In Section Two we review the main issues with potential income taxes and how they compare with actual income taxes. In

⁴ However, it must be noted that presumptive methods typically strive to approximate actual earned income as opposed to potential income

⁵ This is unless one interprets head taxes, still being used in some Sub-Saharan African countries, as a form of a potential income tax.

⁶ 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 regardless of how the property is actually used. In this sense, therefore, a market assessed property tax falls on the capitalized value of the potential income that can be realized from the property.

Section Three we explore the use of human capital theory and empirical findings to design a potential/presumptive income tax in using data from the U.S. as an example. Section Four reviews some of the challenges to the implementation of potential income taxes. Section Five offers some conclusions.

2. The practice of potential income and presumptive taxes around the world

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. In more recent times, Allingham (1975), Tanzi (1991), and Sadka and Tanzi (1993) among others have discussed potential income as a criterion for ability to pay⁷, most typically focusing on potential income of businesses.⁸ Sadka and Tanzi (1993) summarize versions of a potential income tax including the 1998 Mexican tax on business's gross assets (the 'impuesto minimo sobre los activos'), 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 privilege tax to raise revenues since the 1800s (Rodgers and Temple, 1995). There, a county assessment office assigns assessed values

⁷ From the standpoint 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.

⁸ There have been also negative views expressed regarding a tax on potential income. See, for example, Hansen (2007).

to various occupations, and 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.⁹ 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 in Israel, which is used to tax those trades and professions that do not keep accurate books.¹⁰ Other methods of presumptive taxation that are used in developing countries, which have elements of potential income taxation, are reviewed by Rajaraman (1995), Bird and Wallace (2005), and Thuronyi (2005).

There are also examples of presumptive taxes that contain elements of a potential income tax. For example, in his discussion of taxes based on profession or trade (“patente”), Thuronyi (2005) indicates that taxpayers may be placed into categories based on the number of years a person has been out of school, which is likely to be highly correlated with potential income. Local property taxes that exist in some form in most countries can also be viewed as a tax on potential income since the tax base, assessed value, is usually linked to capital income that could be derived from the property.

⁹ In 2005 this tax was changed to the emergency and municipal services tax and capped at \$52 per worker. A large number of municipalities and school districts continue to levy the tax. The levy ranges from \$5 to \$52 per worker.

¹⁰ See, for example Goode (1981), Tanzi and Casanegra de Jantscher (1989), and Thuronyi (2005) for a more detailed account of the forfait and tachshiv systems. See especially Yitzaki (2007) for an analysis of tachshiv.

There is also a strong element of potential income taxation in those taxes levied on enterprise assets (as opposed to enterprise income). 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. As noted above, Mexico and Argentina impose a tax on the gross assets of businesses. 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 rather than profits (Gray, 1991); this clearly could be considered analogous to a potential income tax on enterprises, as long as we consider the predetermined (or any set) rate as the normal rate of return on potential income.

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 has 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.

3. Using human capital theory to measure potential income

The key to developing a potential income tax is to measure objectively potential income. In many ways the problem of measuring potential income is similar to that of

measuring imputed income for a presumptive tax.¹¹ 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. Haveman, Bershadker, and Schwabish (2003, p. 77) present an appealing theory of earnings capacity as an “estimator of the potential annual rental value of the stock (of human capital)”. Similar to a capital asset, earnings capacity is therefore an estimate of the market value of human capital—or a measure of potential income.¹²

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. Assuming a competitive labor market with perfectly elastic short run labor demand functions, they can estimate the EC for the entire working-age population, whether or not they are fully

¹¹ We can consider presumptive income as an approximation of potential income but there are some differences between the two concepts. For example, some presumptive methods may make no effort to get close to potential or actual income; in addition, presumptive income is typically calculated only for those that are at the present time working, while potential income is computed for all individuals.

¹² See Becker (1964). Mulligan and Sala-i-Martin (1995) and Barro and Lee (1993) also construct aggregate measures of human capital accumulation for states and countries respectively.

engaged in labor activities at the time of analysis. They introduce uncertainty by including a random shock in the estimation procedure to introduce variation similar to that which exists in actual earnings. Individuals' earning capacities are aggregated to derive a comprehensive measure of the productive capacity of the nation's human capital.

Utilization rates of human capital are also examined by Haveman et al. (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 versus 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 in tax revenues, or about 10 percent of total U.S. 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.

3.1 An example of potential income tax base

Although individuals' human capital may be considered a good indicator of their ability to pay taxes, making the concept operational can be difficult. 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 as they do. 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. Thus the exercise provides an example of how potential income can be calculated using existing data; it also allows us to explore empirically the equity effects of an income tax system that is based on potential income relative to the current system based on earned income. Of course, at this stage, the main purpose of this exercise is to demonstrate how such a tax base might be estimated.

This is how we proceed empirically. We use data from the 1990 U.S. Current Population Survey (CPS) to calculate an implicit hourly wage for workers aged 17 - 64 in the sample.¹³ The wage is calculated based on the reported data in the CPS regarding

¹³ 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. The selection of 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

weekly earnings and hours worked per week. Using this hourly wage, we 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.¹⁴

The parameter estimates from the wage equation 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.¹⁵ 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

data are less susceptible to transition activities with respect to income and labor supply. The reason we used data from the U.S. to illustrate a potential income tax is simply because these data are readily available.

¹⁴ 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. All descriptive statistics and regression results are available from the authors upon request.

¹⁵ Again recall that income from capital, rent, interest, and dividends is not considered in this analysis.

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 income¹⁶. We then calculate an average tax burden by potential comprehensive income group for workers and non-workers.¹⁷ We also calculate the tax burden under a revenue neutral flat rate tax system.¹⁸

The results for the wage equation are similar to those found in a number of other studies.¹⁹ 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.

The data in Table 1 show the average tax burden calculations under the current federal income tax system and a tax system with the same rate structure but 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

¹⁶ Potential comprehensive income equals the sum of potential wage and salary income, social security, welfare benefits, veteran's benefits, survivor benefits, and disability benefits. Potential comprehensive income equals the sum of estimated family income from the wage equation, social security, welfare benefits, veteran's benefits, survivor benefits, and disability benefits.

¹⁷ The welfare costs associated with the tax change are also calculated, but for space reasons are not reported here. That calculation is made based on Browning (1985, 1987). The results are available from the authors.

¹⁸ The flat tax rate case is chosen mainly because of its convenience to calibrate the revenues.

¹⁹ For example, see Becker (1964), Mincer (1974), and Idson and Feaster (1990).

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 is 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 2. 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.

We are able to make comparisons of our operational potential income tax with the results of Haveman et al. (2003) by comparing the coefficients between their estimation and that used in this paper. Many of the explanatory variables in Haveman et al. are found in the equation estimated for this paper. There are some differences including the fact that the Haveman et al. estimation is done by gender and race, whereas in this paper we use control dummy variables for gender and race and run only one equation. The most important coefficients in terms of size and significance of marginal effect on predicted wage (or “potential wage income”) are consistent between the two studies: education, age, marital status, and city or metropolitan area or suburb. Using these coefficients to predict a wage (based on mean values of the 1990 CPS data), the average wage using the Haveman et al. coefficients is about 24 percent higher than the average wage using the coefficients estimated here. This suggests that while we might understate the value of the predicted wage, it is quite similar to that estimated in the Haveman et al.

study. The magnitude of the coefficients and signs of most all variables are similar between the two studies.

An alternative way to incorporate Haveman et al. (2003) analysis into the income tax context of this paper is by making a few more macro assumptions. For 1990 (our comparison year), Haveman et al. estimate a capacity utilization rate of 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 reported for tax purposes were \$2.6 trillion. 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.²⁰ The NBER reports an average marginal tax rate on 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. This suggests that their calculation of potential income yields a larger tax base than our estimate, which yields the important conclusion, otherwise unsurprising, that the yield of a potential income tax can vary significantly with the methodology used to arrive at potential income.

4. Challenges to the implementation of potential income taxes

As we have indicated, different forms of potential income and presumptive income taxation can be found around the world. However, no country has ever tried the full-blown application of a potential income like the one described in the previous

²⁰ 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.

section. The actual implementation of a potential income tax would be subject to a number of challenges. In considering the implementation of a potential income tax the question is whether it would produce better results than 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. In 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, and the like may be provided via secondary data.

Second, there is a question on the proper scope of the potential income tax. One set of questions has to do with the type of government that may adopt this type of tax. Under what circumstances would a potential/presumptive based income tax be appropriate, or more appropriate than a conventional tax on earned income? Is it more appropriate for a developing country or sub-national government? It is difficult to conceive of any developing country completely moving to a potential income tax. Concerns about equity alone would reduce its potential in many countries. However, as a

tax for lower levels of government or for developing nations where income is very difficult to measure, it may be a more attractive policy option.

Some lessons on applicability or acceptability of potential income tax can be learned from the practice of property taxation. The property tax can be considered a good practical example of a potential income tax since the assessed or market value of property is a reflection of the net present value of the rental return on a capital asset—or potential income. Although property taxes generally are not well-liked, they are accepted as a revenue source, particularly for local governments. In many countries, the property tax is a relatively small portion of the overall government fiscal structure, which may suggest that a potential income tax, at a relatively low level, may also be quite acceptable

There is also a question of scope relating to the coverage of different types of income. It may be easier initially just to focus on labor income. But it would be possible at some point to couple the tax on potential labor income with a source-based capital assets tax. In this way, the taxes would cover potential income from both labor and capital sources.

Third, what type of tax would be easier to administer? From administrative and compliance perspectives the earned income tax on salaried workers may be easier to implement because of the applicability of withholding schemes. However, one could also envision the same withholding schemes working for the potential income tax. In the 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 weakness of the earned income tax has

always been 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 income tax.

Fourth, we need to ask whether the wholesale substitution of one type of tax for the other is actually 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 (and politically acceptable) to mix the use of the two approaches. This still would mean a much more frequent and intensive use of presumptive taxes than is now the case in most tax systems around the world. Some of the possibilities that could be considered include the following. A general tax on potential income, meaning to be paid by everybody, could be coupled with a surtax on actual income for actual incomes exceeding certain thresholds. 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.

Fifth, while a tax on potential income has desirable efficiency properties (e.g., on work effort), such a tax may also discourage human capital accumulation in the long run since individuals with higher levels of human capital generally will be asked to pay more

taxes. Sadka and Tanzi (1993) and Judd (1998) suggest that this disincentive may be eliminated through appropriate tax provisions for investment in human capital. Also, 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 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. In the case of a potential income tax, the “increased education-increased tax liability” relationship is likely to be more apparent due, in part, to the public awareness that would surround imposition of such a tax. Individuals who are uncertain about how much they will use their acquired human capital skills in the future (e.g., whether they will work) are likely to be more discouraged in acquiring human capital under a potential income tax than under a earned income tax.²¹ On the other hand, for individuals who are certain about their intentions to use their human capital skills, a potential tax could be less discouraging for the accumulation of physical capital than a tax on earned income. 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 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.

Sixth, 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,

²¹ Note that there is an element of efficiency also 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 who later on do not use them.

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 is clearly a complication for the implementation of a potential income tax.

Seventh, evaluating the 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 a 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 the Haveman et al. (2003) estimates, 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 we would expect the excess burden losses associated with a particular level of revenues would be considerably lower for the potential income tax.

Eighth, a tax on potential income raises several concerns with equity. It is helpful to differentiate between the two conventional concepts of horizontal and vertical equity in discussing these effects. 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. 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,²² 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) have argued that presumptive taxation may improve horizontal equity since employees of large companies are more likely to be taxed than the self-employed, and therefore using presumptive taxes on self-employed occupations may improve equity.

From a vertical equity viewpoint, 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 one of the main points of attraction for a potential income tax. If the 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

²² 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. Thus, 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 may not appear to be fair.

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 a 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.²³

Several other issues concerning equity need to be raised. Is a potential income tax appropriate for extremely wealthy individuals, i.e., the “Bill Gates issue”? Under a potential income tax, much of the income of very wealthy individuals would not be taxed. While this may encourage more entrepreneurial behavior, it would also affect the political acceptability of the tax. Perhaps some mixed (potential and actual income) approach as suggested above with a surtax on actual income above some high threshold of potential income (or perhaps actual income) would make a potential income tax more acceptable. Alternatively, such an issue may lead to a recommendation to use a potential income tax for sub-national governments where the net impact of such disparities may be less than at the national level, assuming lower tax rates and less importance of the tax.

At the opposite extreme are individuals with high levels of human capital who choose to work as volunteers, in low-paying public service oriented jobs or in the nonprofit sector; i.e., the “Doctors without Borders issue”? Taxing such individuals at their potential income may provide a disincentive to volunteer or work in the public sector. Perhaps, with appropriate information the potential income tax system could be

²³ Over time, working above average could raise the calculated average potential income for certain human capital characteristics.

modified to reduce the tax liability or even to exempt these individuals with the proper certification from legitimate and approved institutions. This would increase complications in the system but likely not differently from what is required by special treatments under an actual income tax. There is also the possibility of allowing for work in the non-profit sectors in the estimation of the potential income equation. Of course, the larger the role of a potential income tax, the more pressure there is to deal with these types of special situations.

Finally, there are many other 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, individuals who work in the household without formal compensation like parents with young children in need of care, and so on? One of the advantages of a potential income tax is that it encourages work effort by not taxing income earned above the average. However, individuals who are involuntarily unemployed do not have the opportunity to earn any income and should not be taxed. This sort of situation could be verified through the current unemployment system. The treatment of individuals who are voluntarily unemployed is a more complex issue. Here are some general considerations. We would want to differentiate among people who engage in productive behavior that is not compensated, such as a stay-at-home mom or dad and people who choose not to engage in productive activity and choose instead to allot their time to leisure activities. One way to deal with this issue would be to effectively tax both activities but at different rates. Individuals with young children

(verified with birth records) would be allowed an exemption for, say, two years; thereafter, a potential income tax might be charged at a lower rate. Individuals voluntarily unemployed (e.g., no evidence of family illness, childbearing) would be taxed at the normal rate. Retirees, who could be defined similar to a pension definition, would not be taxed from the normal retirement age forward.

There is little doubt that the political acceptability of the potential income tax will require significant further exploration. 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 would be much more problematic. Tax reform is never easy, and the introduction of a potential income tax would represent a radical form of tax reform, requiring much more public discussion and taxpayer education.

5. Conclusions

A tax based on potential income has several desirable properties. The main 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, the 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, which 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.

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 taxpayers in 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. There are also many important details in the implementation of a potential income tax, such as how to tax the “voluntarily unemployed”, which would affect not only its efficiency properties but also its political acceptability.

The discussion in this paper mostly has focused on the taxation of labor income with a potential income tax. Future research should address how to combine potential income taxation of labor and capital for a more balanced and comprehensive treatment of all income. As we have pointed out in this paper, the taxation of potential income from physical capital assets already exists in different forms in many tax systems, especially real estate property taxes or corporate asset taxes. 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 firms’ income to be affected by particular market conditions, such as the degree of competition, which would not be easily quantified. There is little doubt that the political acceptability of the potential income tax will require significant further research.

There is also a need for more research on the relationship between potential income taxes and presumptive taxes. 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 to counter these issues of the hard-to-tax sector. This is particularly true 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 lack of tax administration expertise and funds to enforce a standard income tax. The reason presumptive income taxes have been traditionally viewed as a temporary, and not a very desirable, solution for taxing income is that the goal in designing presumptive taxes has been to approximate actual measured income, but actual income for a variety of reasons is difficult to measure. For this reason perhaps, a theoretical justification for presumptive taxation may not have been thoroughly researched or developed. However, at least some presumptive taxes may be thought of as methodologies to approximate potential income, and from this perspective presumptive income taxes could be looked at in a more favorable light.

Table 1. 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 2. Tax Burdens Grouped by Potential Comprehensive Income for a Revenue Neutral Flat-Rate Tax on Potential Income

1	2	3	4
Potential Comprehensive Income Group	Number of Families	Average Tax Burden Actual Tax Liability / Potential Comprehensive Income Workers and Non-workers	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

References

- Ahmad, E. and Stern, N. (1991), *The Theory and Practice of Tax Reform in Developing Countries*, Cambridge UP, New York.
- Allingham, M.G. (1975), Towards an Ability Tax, *Journal of Public Economics* 4(4), 361- 376.
- Balestrino, A. and Galmarini, U. (2005), On the Redistributive Properties of Presumptive Taxation, Working Paper No. 1381, CESifo
- Barro, R. J. and Jong-Wha L. (1993), International Comparisons of Educational Attainment, *Journal of Monetary Economics* 32(3), 363-394.
- Becker, G. (1964), *Human Capital*, National Bureau of Economic Research, New York.
- Bird, R. M. and Wallace, S. (2005), Is it Really so Hard to Tax the Hard-to-Tax? The Context and Role of Presumptive Taxes, in: Alm, J., Martinez-Vazquez, J. and Wallace, S. (eds.), *Taxing the Hard to Tax: Lessons from Theory and Practice*, Elsevier, New York, 121-158.
- George, H. (1904), *Progress and Poverty*, Doubleday Press, New York.
- Goode, R. (1990), Some Economic Aspects of Tax Administration, in: Bird, R.M. and Oldman, O. (eds.), *Taxation in Developing Countries* Baltimore, Johns Hopkins UP, Washington DC, 476-491.
- Gray, C. W. (1991), Tax Systems in the Reforming Socialist Economies of Europe, *Communist Economies and Economic Transformation* 3(1), 63-79.
- Hasen, D. (2007), Liberalism and Ability Taxation, *Texas Law Review* 85, 1057-1113
- Haveman, R. H., Bershadker A., and Schwabish J. A. (2003), *Human Capital in the United States from 1975 to 2000 Patterns of Growth and Utilization* Kalamazoo, W.E. Upjohn Institute for Employment Research, Michigan
- Idson, T. L. and Feaster D.J. (1990), A Selectivity Model of Employer-Sized Wage Differentials, *Journal of Labor Economics* 8(1), 99-122.
- Judd, K. L. (1998), Taxes, Uncertainty, and Human Capital, *American Economic Review* 88.2, 289-292.
- Mincer, J. (1974), *Schooling, Experience and Earnings*, National Bureau of Economic Research, New York.
- Mirrlees, J.A. (1971), An Exploration in the Theory of Optimum Income Taxation, *The Review of Economic Studies* 38(2), 175-208.
- Mulligan, C. B. and Sala-i-Martin X. (1995), A Labor Income Based Measure of the Value of Human Capital: An Application to the States of the United States Working Paper Series No. 5018, National Bureau of Economic Research.
- Musgrave, R. A. (1959), *The Theory of Public Finance: A Study in Political Economy*, McGraw-Hill, New York.
- Musgrave, R. A. (1990), Income Taxation of the Hard-to Tax Groups, in: Bird, R.M. and Oldman, O. (eds.), *Taxation in Developing Countries* Baltimore, Johns Hopkins UP, Washington DC, 299-309.
- Plug, E., van Praag J.S., Bernard M.S., and Joop, H. (1999), If we knew ability, how would we tax individuals? *Journal of Public Economics* 72, 183-211.
- Rogers, D. L. and Temple J. (1995), *Taxing Human Wealth: Pennsylvania's Experience with the Local Occupational-Assessment Tax*, Conference Paper Prepared for the 1995 National Tax Association Annual Conference on Taxation.
- Sadka, E. and Tanzi V. (1993), A Tax on the Gross Assets of Enterprises as a Form of Presumptive Taxation, *Bulletin for International Fiscal Documentation* 47(2), 66-73.
- Tanzi, V. (1991), Potential Income as a Tax Base in Theory and in Practice, in *Public Finance in Developing Countries*, Edward Elgar Brookfield, Virginia, 193-209.
- Tanzi, V. and Cassanegra de Jantscher, M. (1987), *Presumptive Income Taxation: Administrative, Efficiency, and Equity Aspects* WP /87/54, 17 August, International Monetary Fund.
- Thuronyi, V. (2005), Presumptive Taxation of the Hard-to-Tax, in: Alm, J., Martinez-Vazquez, J. and Wallace, S. (eds.), *Taxing the Hard to Tax: Lessons from Theory and Practice*, Elsevier, New York, 101-120.
- Tideman, N. (1982), A Modern Theory of Land Taxation, *National Tax Journal* 35(1), 109-111.
- Vickery, W. (1999), A Modern Theory of Land Taxation, in: K.C. Wenzer (ed.), *Land Value Taxation: The Equitable and Efficient Source of Public Finance*, M.E. Sharpe, New York, 13 -16.
- Wildasin, D. (1982), More on the Neutrality of Land Value Taxation, *National Tax Journal*, 35(1), 105-108.
- Yitzaki, S. (2007), Cost Benefit Analysis of Presumptive Taxation, *Finanzarchiv*, (this issue)