Cover Sheet

The Power Tax:

A simple and fair federal income tax system

A submission to the

President's Advisory Panel on Federal Tax Reform

Submitter: Andrew B. Watson

Category of submitter: Individual

Date of submission: April 27, 2005

Contact Information:

Andrew B. Watson
56 Cleland Avenue
Los Gatos, CA 95030
(408) 354-6601

Introduction

The primary objection to the current federal income tax system is its complexity. This complexity exacts enormous costs in terms of time and money spent completing returns and ensuring compliance, and in terms of lost goodwill towards the system. Complexity also leads to a lack of transparency, which leads to a sense of inequity. One well-known solution to this complexity is the so-called "flat tax," which taxes all taxpayer income at a flat rate. But the flat tax is not fair, since it would raise taxes for about 98% of taxpayers, most especially for those in the middle and lower income groups.

Fortunately, there is a system of taxation that is both simple and fair: the power tax. Details will be provided below, but in essence the power tax is a simple generalization of the flat tax. Instead of a tax rate that is a constant with income, the power tax employs a tax rate that is a power function of income. The power tax is completely defined by two numbers: the *base rate*, which is the tax rate paid by a taxpayer earning the average income, and the *power*, which determines how progressive the system is. Both numbers must lie between zero and one.

Because the power tax involves only two numbers, it can clarify greatly the national debate on taxes, both now and in the future. The base rate determines the total fraction of national income collected in tax, while the power determines how that fraction should be distributed over economic groups. These are the two great questions of taxation, and they are made explicit and transparent in the power tax.

I. Description of Proposal

Tax Base

The tax base of the power tax is income. The precise definition of income is not central to this proposal, but the desire for fairness suggests that it should include all sources of income, treated equally, including wages, interest, dividends, and capital gains.

Tax Rates

The power tax specifies the tax rate for each payer as

$$r = b\, d^{\,p}$$

where d is the *relative income* of the payer, b is the *base rate*, and p is the power. The power is a constant between zero and one which describes the degree of progressivity of the tax system. The two constants b and p define a particular implementation of the power tax. Note that when $p = 0$, this is the flat tax. These concepts behind the powertax are explained below.

We begin by considering the total population of K taxpayers. Each of these taxpayers has a particular income i, a particular tax rate r, and pays a particular tax $t = r\, i$. The sum of all incomes is the total income I, and the sum of all taxes paid is T. The average income is $A = I/K$. The fraction of all income taken in taxes is the average tax rate, $M = T/I$. We can also specify a particular income as a fraction of the average income, or what we call the *relative income*, $d = i/A$.

For a large population, such as that of US taxpayers, we do not usually have information on individual taxpayers; instead we have information about bins of taxpayers grouped together by income. Let the incomes be grouped into J bins where n_j is the

number of taxpayers in bin j, each with income i_j, tax rate r_j, and tax paid t_j. We call this

collection of bins the *income and tax distribution*. Then the total tax collected is given by

$$T = \sum_j n_j t_j$$

It is also possible to express the distribution of incomes in normalized terms. Thus we

define the fraction of the taxpaying population in bin j as $f_j = n_j /K$ And we define the

income density as the fraction of income earned by that fraction, divided by that fraction.

This turns out to be the same as the *relative income*, that is, the ratio of a particular

income to the average income.

$$d_j = i_j n_j /(f_j I) = i_j /A$$

Note that for the average income, $d = 1$. We may describe the units of relative income

as "shares." Thus if someone has a relative income of 2 shares, they receive twice the

income they would receive if everyone earned the same amount.

The power tax specifies the tax rate for a payer of relative income d as

$$r = b d^p$$

where b is the *base rate*, and p is the power. The power is a constant between 0 and 1

which describes the degree of progressivity of the tax system. Note that when $p = 0$, this

is the flat tax.

What is the base rate b? When $d = 1$ (the average income), we see that $r = b$,

regardless of the value of p. Thus the base rate b is the rate paid by the taxpayer with the

average income. The base rate can be easily determined from the power p, the average

tax rate M, and the particular distribution of income given by f_j and d_j :

$$b = M / \sum_j f_j d_j{}^{p+1}$$

To illustrate this result, Figure 1 plots as a black curve the base rate as a function of the power, for a constant (revenue neutral) average tax rate of $M = 14\%$ (based on 2001 data[1], the average tax rate M was about 14%). Consequently if the power is zero (the flat tax), the base rate would be equal to the average rate of 14%. As the power increases, the base rate declines. Figure 1 also shows tax rates for various relative incomes (in units of shares). As one example, the relative income of 5 rises slightly above the average rate for powers below about 0.45, but then declines below the average rate with further increases in the power.
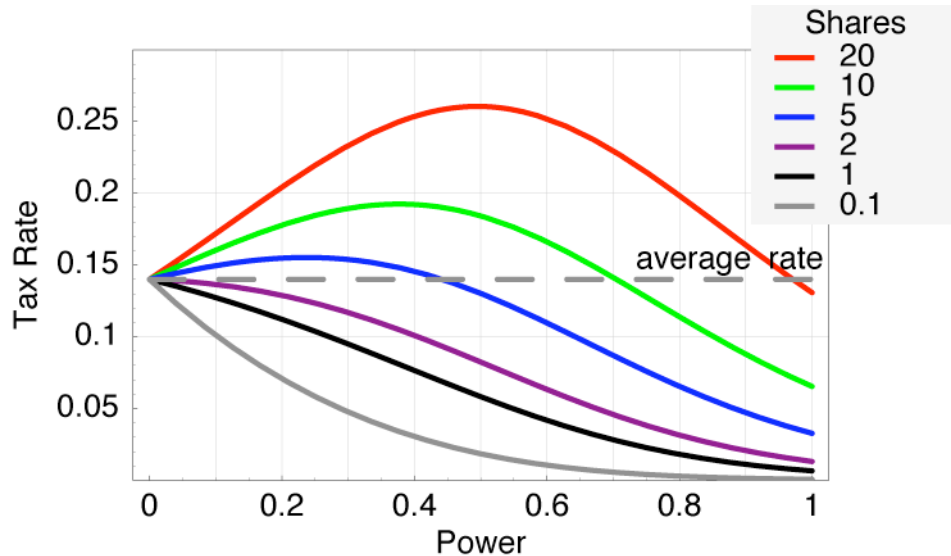

Figure 1. Base rate as a function of power for 2001 income and tax distribution. Average tax rate = 14%.

Another view of the power tax is provided in Figure 2. Here we plot the tax rate as a function of relative income for several values of the power. Again the average tax rate is fixed at 14%.

---

[1] These calculations, along with all other calculations in this proposal, are based on 2001 income and tax data at http://www.irs.gov/taxstats/article/0,,id=96586,00.html.
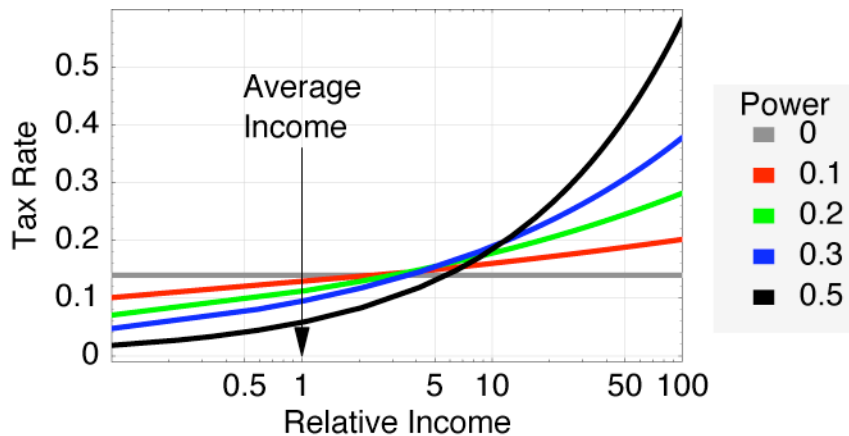
Figure 2. Tax rate as a function of relative income for several values of the power. Average tax rate = 14%.

Distribution of Tax Burden

Through selection of the power, the power tax can be made to distribute the tax burden in either a flat (p = 0) or a progressive manner (0 < p < 1). With respect to the flat tax, it is worth noting that about 98% of taxpayers have a relative income of 2.75 or less. For these 98% of taxpayers, a flat tax would impose a higher rate than any progressive power tax. Put another way, 98% of the population would lose from a flat tax.

Exemptions

Treatment of exemptions is not central to this proposal, but the desire for fairness and simplicity suggests that exemptions should be few or none. In many cases, the loss of exemptions will be compensated by a lower tax rate. In addition, to the extent that exemptions presently favor high (or low) incomes, a similar result can be obtained through an appropriate adjustment of the power.

Treatment of Charitable Giving

Treatment of charitable giving is not central to this proposal, but the desire for simplicity suggests that charitable giving should not be a deduction from income.

Treatment of Home Ownership

Treatment of home ownership deductions is not central to this proposal. It may be included or not without altering the basic idea of the power tax. The desire for simplicity suggests that such deductions should be eliminated. The loss of this deduction can be approximately compensated for by an adjustment of the power, since home ownership deductions are correlated with income.

Collection Methods

The simplicity of the powertax would enable the "one postcard" (or "one web page") method of filing returns. The IRS would notify the public of the base rate and the power for a given tax year. Taxpayers would combine all sources of income (as reported on W-2, 1099, and similar forms), and would use a calculator (possibly online or telephonic, provided by the IRS) to compute their tax. Online filing and payment of taxes is an obvious possibility.

Treatment of Businesses

The power tax is a system for taxation of individuals and does not apply to business taxes, though a similar system may be applicable there.

II. Impact of Proposal Relative to Current System

Our current system of taxation is progressive at some levels of income, but rates actually decline at the highest income levels, as shown in Figure 3. For this reason, and because available data do not give a clear picture of the distribution of all income, it is difficult to specify the power that would best approximate current tax rates. However, we can be confident that such an approximation, at least for the bulk of taxpayers, can be found, and thus the transition to the power tax would be tax-neutral for most taxpayers.

(The power which minimizes the change in rates for the most taxpayers, in 2001, is about 0.4.)
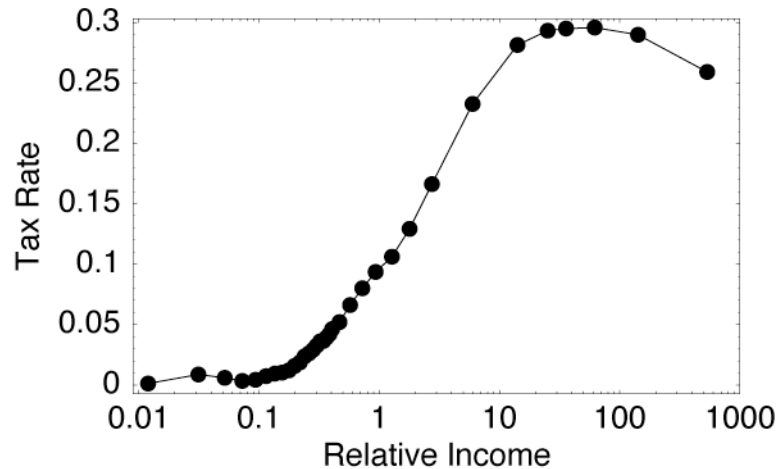

Figure 3. Tax rate as a function of relative income (2001).

Simplicity (including transparency and stability)

The power tax is vastly simpler than the current system. As noted above, individuals could file their taxes on one line of a postcard or web page. The system is also highly transparent, as the base rate and the power are publicly known, and their effects are obvious and explicit.

Fairness

Ever since our system of income taxation began in 1913, the word "fair" has been synonymous with a progressive tax. The power tax is combines the simplicity of the flat tax with the fairness of a progressive tax. The power tax is also fair in the sense that it is determined by two numbers – the base rate and the power – whose effects are transparent and whose values would be arrived at through the democratic process of debate and legislation.

The power tax is also fair in the sense that it behaves identically at all levels of income. There are no discontinuities in the relation between income and tax rate. The ratio of tax rates for any two taxpayers depends only on the ratio of their incomes.

To meet other notions of fairness, it is possible to modify the power tax slightly to accommodate both high and low income taxpayers. First, a threshold may be established below which no tax is paid. Second, to limit the highest tax rate in the system, one may establish an upper threshold above which all incomes are binned together. This is effectively so in the calculations shown here, since the uppermost income bin begins at an income of $10,000,000.

Economic growth and competitiveness

Growth and competitiveness will be enhanced by a system of taxation that is fair and transparent, and that never penalizes an increase in income. Because the power is always less than one, the tax on an additional dollar earned must always be less than a dollar. In addition, the values of the base rate and the exponent that optimize growth and competitiveness can be arrived at through economic research and national experience.

Compliance and administration costs

These costs are expected to be much less than the current system, since they would involve only a comparison of income reported by individuals and reported by payers (employers, financial institutions, etc.).

III. Transition, Tradeoffs and Special Issues

Revenue Neutral

The power tax is revenue neutral. By this we mean that it would not alter the current average tax rate. In fact, in the power tax, the rates are automatically adjusted to preserve the average tax rate. This is done by computing an appropriate base rate based on 1) the average tax rate, 2) the power, and 3) the distribution of income.

Loss of Special Provisions

No tax can be "simple" and still preserve the very extensive array of special provisions that make our current system so complicated. There will be those who will be disadvantaged by the loss of special provisions. But their loss may be compensated by generally lower rates, and by selection of an appropriate power. If the system is revenue-neutral, then by definition the average taxpayer will neither win nor lose.