

THE TAX REFORM ACT OF 1986: AN ASSESSMENT IN TERMS OF TAX COMPLIANCE BEHAVIOR

1. INTRODUCTION

Income tax evasion effectively consists of taxable income that is either unreported or underreported to the government tax collection agency, the IRS (Internal Revenue Service). Studies of income tax evasion behavior essentially fall into three categories. First, there are the principally theoretical models of tax evasion behavior, such as Falkinger (1988), Allingham and Sandmo (1972), Klepper *et al.* (1991), Das-Gupta (1994), Pestieau *et al.* (1994), and Caballe and Panades (1997). Second, there are a number of studies that either (a) use questionnaires or (b) undertake experiments, such as Spicer and Lundstedt (1976), Friedland (1982), Spicer and Thomas (1982), Alm *et al.* (1992), Baldry (1987), Thurman (1991), and Alm *et al.* (1999). Third, there are those studies using what is referred to as 'official data' (Tanzi, 1982; Clotfelter, 1983; Carson, 1984; Slemrod, 1985; Erard and Feinstein, 1994; Feige, 1994; Ali *et al.*, 2001; Cebula, 2001, 2004; Cebula and Saltz, 2001).

Potentially related to the issue of federal personal income tax evasion or compliance, is the Tax Reform Act of 1986, signed into law by President Reagan on October 22, 1986. This statute marked the culmination of a movement towards tax reform that openly began in 1984. The effort in principle was regarded, at least initially, as a 'genuine' effort to simplify the onerous and genuinely complex Internal Revenue Code. This study seeks to add to the rich literature on income tax evasion by investigating whether the degree of aggregate federal personal income tax compliance was increased by the implementation of the Tax Reform Act of 1986, a statute viewed by Musgrave (1987, p. 59) as attribute rich but

“... far from complete”.

The Tax Reform Act is examined briefly in the following section of this study. The subsequent section of this study provides the model, whereas the section thereafter provides the formal empirical

analysis. A conclusion summarizes findings of this study and the principal implication thereof, namely, as argued by Slemrod (1992), that this statute was largely just a *temporary* impediment to those inclined towards income tax evasion and once the new tax statute was fully understood, tax evasion essentially resumed its prior levels.

2. THE TAX REFORM ACT OF 1986

As Slemrod (1992, p. 45) observes,

“Simplification was a major concern when the tax reform debate began in earnest in 1984” Slemrod (1992, p. 45).

further observes that

“The Treasury Department’s proposal issued in November of that year [1984] was entitled *Tax Reform for Fairness, Simplicity, and Economic Growth*”.

In point of fact, the Treasury had proposed a federal income tax system simple enough that a substantial majority of taxpayers could have been eligible for a system of ‘return-free filing’, i.e., a system in which the IRS could calculate tax liabilities based on information reported by third parties, such as employers, financial institutions, and the like. Slemrod (1992, p. 45) observes that within a short time period after the Treasury proposal, the tax proposal actually released by President Reagan, which was the result of

“... six months of debate both in public and within the Administration... relegated simplicity to the third and last goal of its title” (Slemrod, 1992, p. 45).

This sacrifice of simplicity was the price paid for the devising of a politically acceptable compromise tax bill that would achieve revenue neutrality and other constraints.

The Tax Reform Act of 1986 (TRA) was characterized by Musgrave (1987, p. 59) as

“... the most sweeping reform since the early 1940s, when the pressures of war finance forced the transformation of the income tax into a mass tax and made it the core of the federal tax system”.

Musgrave (1987, p. 59) held the view that

“The widening of [tax] loopholes and emergence of high income tax shelters [had] gained momentum in recent years and undermined the public’s faith in the income tax”.

Furthermore, Musgrave (1987, p. 59) argued that the

“... compounding of the investment tax credit and accelerated depreciation diluted and distorted the base of the corporate income tax”.

Overall, Musgrave (1987, p. 59) characterizes the TRA as progress:

“The current reform [the TRA] reverses these trends, a major accomplishment that all reformers will welcome”.

The Tax Reform Act of 1986 was portrayed by the media and by leading politicians (and many economists) as a *genuine* effort to reform the Internal Revenue Code. As documented in Ott and Vegari (2003, p. 275), among other things, the TRA reduced the number of tax brackets from 14 to three, increased the tax base by limiting tax deductions, reduced the marginal tax rates, and endeavored in general to

“... improve fairness and equity...”

in the Internal Revenue Code. Musgrave (1987) actually used stronger language in describing these marginal tax *rate* reductions; Musgrave (1987, p. 60) regarded the cuts in the marginal income tax rates as

“... a drastic flattening of bracket rates... that improves horizontal equity, and makes for more efficient capital allocation”.

Musgrave (187, p. 60) also regarded the discarding of

“... the multiple and progressive bracket rates of the past... as a major step towards a flat rate system”.

Musgrave (1987, p. 70) adds that

“The reform... strengthens the income tax by broadening its base and also signals a departure from its traditional role as an instrument of progressive taxation”.

Aside from these accolades (or ‘qualified accolades’) from the media and others as well as from Musgrave (1987) on behalf of the TRA, other very different assessments, in addition to those of Slemrod (1992), have been expressed at various times. For example, it is observed that in addition to the changes in the Internal Revenue Code described above, Barth (1991, p. 45) observes that the

“Tax Reform Act of 1986 reduced the depreciation benefits of investing in commercial and residential property, limited the offsetting losses on passive investments that affect limited partnership syndications, and eliminated favorable capital gains treatment”.

Interestingly, these changes under the TRA are portrayed in a more pessimistic light. For example, it is argued compellingly in Sanger *et*

al. (1989) that these provisions of the TRA caused serious problems for the real estate industry. Agreeing with Sanger *et al.* (1989), Barth (1991, p. 45) goes further and states without qualification that

“The changes in tax laws adversely affected real estate values, thereby weakening the financial condition of savings and loan institutions”.

Barth and Brumbaugh (1992) stress that the TRA was a key factor in the savings and loan crisis of the late 1980s and early 1990s, largely because it

“... adversely affected real estate values...”.

With this background of views on the TRA, the remainder of this study attempts to determine whether individual taxpayers regarded the TRA as a genuine positive effort at tax reform and whether, as a result, they responded by increasing the degree of their compliance with the Internal Revenue Code. Alternatively expressed, did the TRA so influence the public that it engaged in a lesser degree of aggregate federal personal income tax evasion?

3. THE MODEL

In this study, the *relative* probability that the *representative* economic agent will *not* report his/her taxable income to the IRS is treated as an increasing function of the expected gross benefits to the agent of not reporting income, eb , and a decreasing function of the expected gross costs to the agent of not reporting income, etc. Thus, the ratio of the probability of not reporting income to the IRS, pnr , to the probability of reporting income to the IRS, $(1-pnr)$, is described for the representative economic agent by:

$$pnr/(1-pnr) = f(eb, ec), f_{eb} > 0, f_{ec} < 0 \quad (1)$$

Since the values for pnr will vary across different sectors of the economy, pnr may be viewed as a weighted average of these various probabilities. Expressing probabilities in *relative* terms such as shown in equation (1) possesses the virtue that it thereby reflects the form of the data, i.e., data where the aggregate degree of federal personal income tax evasion is expressed in relative terms.

Following the conventional wisdom, the expected gross benefits from *not* reporting income to the IRS are hypothesized to be an increasing function of the federal personal income tax rate (Cagan, 1958; Bawley, 1982; Tanzi, 1982; Clotfelter, 1983; Slemrod, 1985; Pyle, 1989; Feige, 1994; Pozo, 1996). To reflect the federal personal

income tax rate, most previous studies using official data for the U.S. have adopted either of two alternative measures: an average federal personal income tax rate (APT) or the maximum marginal federal personal income tax rate (MPT). In this study, we *separately* consider *three* alternative measures of the federal personal income tax rate: APT, MPT, and LPT, where the latter represents the minimum (positive) marginal federal personal income tax rate. Thusly specifying the income tax rate allows us to control for the possibility that the empirical results might be sensitive to the choice of tax rate measure. In any case, it is hypothesized, *ceteris paribus*, that:

$$eb = g(\text{APT or MPT or LPT}), g_{\text{APT}} > 0 \text{ or } g_{\text{MPT}} > 0 \text{ or } g_{\text{LPT}} > 0 \quad (2)$$

Next, this study endeavors to allow for the potential impact of legal tax avoidance on illegal tax evasion in the U.S. To do this, we test the hypothesis by Cebula (2004, p. 419) that

“... the higher the tax-free interest rate yield on high grade municipal bonds (TF) relative to the taxable interest rate yield on...”

high quality bonds or notes such as ten year U.S. Treasury notes (TEN),

“... the greater the incentive to engage in legal tax avoidance and the lower the incentive to engage in tax evasion”.

Thus, it is hypothesized here that the greater the TF/TEN ratio, the lower the eb, *ceteris paribus*. Hence, (2) is now rewritten as:

$$eb = h(\text{APT or MPT or LPT}, \text{TF/TEN}), \quad h_{\text{APT}} > 0 \text{ or } h_{\text{MPT}} > 0 \text{ or } h_{\text{LPT}} > 0, h_{\text{TF/TEN}} < 0 \quad (3)$$

The Tax Reform Act of 1986 (TRA) may have been perceived by the general public as an honest effort to reform, improve, simplify and increase the fairness of the Internal Revenue Code. As Musgrave observes (1987, p. 59),

“The Tax Reform Act of 1986 is the most sweeping reform since the early 1940s...”.

Musgrave (1987, p. 59) further observes that prior to the TRA, a slow erosion of the income tax base had been occurring. Musgrave (1987, p. 57) was dismayed by the widening of tax loopholes and the emergence of high income tax shelters that had

“... gained momentum in recent years and undermined the public’s faith in the income tax”.

Musgrave (1987, p. 59) also expresses concern that the

“... compounding of the investment tax credit and accelerated depreciation diluted and distorted the base of the corporate income tax”.

Musgrave (1987, p. 59) asserted that the TRA

“... reversed these trends, a major accomplishment that all reformers will welcome”.

Based on Musgrave's (1987) arguments, it is expected in the present study that at least some taxpayers would favorably regard the TRA and be less resentful of the Internal Revenue Code than before. Thus, it is hypothesized here that at the time the TRA occurred, reduced taxpayer resentment of the federal tax system would, at least at the time the TRA was enacted, result in a reduced degree of federal personal income tax evasion. Equation (3) is now replaced by:

$eb = j \text{ (APT or MPT or LPT, TF/TEN, TRA)}$,

$$j_{APT} > 0 \text{ or } j_{MPT} > 0 \text{ or } j_{LPT} > 0, j_{TF/TEN} < 0, j_{TRA} < 0 \quad (4)$$

A control variable is introduced into the model in order to allow for the potential role of political factors in the tax evasion/compliance decisions of the public (Cebula, 2004), namely, the public's job approval rating of the President (APPROV). The higher the public's approval rating of the President, the greater the degree to which there is satisfaction with the President's job performance and the less dissatisfaction the public manifests with the President's actions and policies. The latter can be interpreted, at least to some degree, as implying less resentment towards his various spending and/or tax policies (and perhaps even his record of budget deficits). Conversely, the lower the public's approval rating of the President, the lower the degree to which there is satisfaction with the President's job performance and the greater the degree to which the public is dissatisfied with the President's actions and policies. In turn, it can be reasonably argued that the latter can be interpreted, to at least some extent, as implying greater resentment towards his various spending and/or tax policies (as well perhaps as his budget deficit record). Stated somewhat differently, the lower the level of APPROV, the greater the subjective benefits from personal federal income tax evasion, whereas the higher the APPROV the lower the subjective benefits of personal federal income tax evasion. Based on this symmetrical argument, then, it is hypothesized that the greater the public's approval rating of the President, the lower the eb , so that (4) becomes:

$$eb = k \text{ (APT or MPT or LPT, TF/TEN, TRA, APPROV)}, \\ k_{APT} > 0 \text{ or } k_{MPT} > 0 \text{ or } k_{LPT} > 0, k_{TF/TEN} < 0, k_{APPROV} < 0 \quad (5)$$

The expected gross costs of not reporting income to the IRS are hypothesized to be an increasing function of the risks thereof (Friedland, 1982; Spicer and Thomas, 1982; Alm *et al.* 1992; Pestieau *et al.* 1994; Erard and Feinstein, 1994; Caballe and Panades, 1997; Cebula and

Saltz, 2001; Cebula, 2004). In this study, to the representative economic agent, the expected penalty from not reporting or from underreporting taxable income to the IRS, is enhanced by an increase in AUDIT, the percentage of filed federal personal income tax returns that is formally audited by IRS examiners/personnel (Spicer and Thomas, 1982). Indeed, the experience of an IRS tax audit would imply non-pecuniary ('psychic') costs as well as pecuniary costs (including outlays for legal or other representation, along with the value of one's own time) above and beyond any potential added taxes, penalties, and interest assessed by the IRS. In addition to AUDIT, it is hypothesized that the risks of tax evasion also include the magnitude of the IRS imposed penalties (PEN) should one's tax evasion activities be detected by the IRS (Friedland, 1982; Cebula, 2004). To reflect this penalty, this study adopts the average interest rate charged by the IRS in each year on detected unreported income. Thus, it is hypothesized that:

$$ec = m(\text{AUDIT}, \text{PEN}), m_{\text{AUDIT}} > 0, m_{\text{PEN}} > 0 \quad (6)$$

Substituting from (5) and (6) into (1) yields:

$$\begin{aligned} \text{pnr}/(1-\text{pnr}) = & f(\text{APT or MPT or LPT}, \text{TF/TEN}, \text{TRA}, \\ & \text{APPROV}, \text{AUDIT}, \text{PEN}), f_{\text{APT}} > 0 \text{ or } f_{\text{MPT}} > 0 \text{ or } f_{\text{LPT}} > 0, \\ & f_{\text{TFTEN}} < 0, f_{\text{TRA}} < 0, f_{\text{APPROV}} < 0, f_{\text{AUDIT}} < 0, f_{\text{PEN}} < 0 \end{aligned} \quad (7)$$

Let AGI represent the *actual total value of the aggregate federal adjusted gross income* in the economy, i.e., $\text{AGI} = \text{UAGI} + \text{RAGI}$, where UAGI is the dollar size of the *unreported aggregate federal adjusted gross income* in the economy, and RAGI is the dollar size of the *reported aggregate federal adjusted gross income* in the economy. It reasonably follows that:

$$\text{UAGI} = (\text{pnr}) * \text{AGI} \quad \text{and} \quad (8)$$

$$\text{RAGI} = (1 - \text{pnr}) * \text{AGI} \quad (9)$$

It then follows that:

$$\text{UAGI}/\text{RAGI} = (\text{pnr}) * \text{AGI} / (1 - \text{pnr}) * \text{AGI} = (\text{pnr}) / (1 - \text{pnr}) \quad (10)$$

From (7) and (10), we obtain, by substitution for $\text{pnr}/(1 - \text{pnr})$:

$$\begin{aligned} \text{UAGI}/\text{RAGI} = & f(\text{APT or MPT or LPT}, \text{TF/TEN}, \text{TRA}, \\ & \text{APPROV}, \text{AUDIT}, \text{PEN}), f_{\text{APT}} > 0 \text{ or } f_{\text{MPT}} > 0 \text{ or } f_{\text{LPT}} > 0, \\ & f_{\text{TF/TEN}} < 0, f_{\text{TRA}} < 0, f_{\text{APPROV}} < 0, f_{\text{AUDIT}} < 0, f_{\text{PEN}} < 0 \end{aligned} \quad (11)$$

4. EMPIRICAL ANALYSIS

Based on the framework provided in (11) above, the following reduced-form equation is to be estimated:

$$(UAGI/RAGI)_t = a_0 + a_1 APT_{t-1} \text{ or } a_1 MPT_{t-1} \text{ or } a_1 LPT_{t-1} + a_2 (TF/TEN)_{t-1} + a_3 TRA_t + a_4 APPROV_{t-1} + a_5 AUDIT_{t-1} + a_6 PEN_{t-1} + u \quad (12)$$

where:

$(UAGI/RAGI)_t$ = the ratio of the aggregate *unreported* federal adjusted gross income in year t to the aggregate *reported* federal adjusted gross income in year t, expressed as a percent;

a_0 = constant term;

APT_{t-1} = the average federal personal income tax rate in year t-1, expressed as a percent;

MPT_{t-1} = the maximum marginal federal personal income tax rate in year t-1, expressed as a percent;

LPT_{t-1} = the minimum marginal federal personal income tax rate in year t-1, expressed as a percent;

$(TF/TEN)_{t-1}$ = the ratio for year t-1 of the average annual tax-free interest rate yield on high grade municipal bonds to the average annual taxable interest rate yield on ten-year U.S. Treasury notes, expressed as a percent;

TRA_t = a binary (dummy) variable for the initial period 1986 (for less than one calendar quarter) and 1987, the first full year after the Tax Reform Act of 1986 was enacted: $TRA_t=1$ for the years 1986 and 1987 and $TRA_t = 0$ otherwise;

$APPROV_{t-1}$ = the Presidential approval rating in year in year t-1: values for $APPROV_{t-1}$ lie between 0.00 and 100.00;

$AUDIT_{t-1}$ = the percentage of filed federal personal income tax returns in year t-1 that was subjected to a formal IRS audit involving IRS examiners;

PEN_{t-1} = the percentage interest rate used by the IRS in year t-1 to assess penalties on detected unreported income; and to be deleted?

u = stochastic error term.

The study period runs from 1960 through 1997, reflecting the availability of the tax evasion data. The data are all annual. The data for APT, MPT, LPT, AUDIT, and PEN were obtained from the IRS (1960-1997) and the IRS (2003). The TRA variable is a dummy variable. The data for the variable TF/TEN were obtained from the Council of Economic Advisors (2007, Table B-73). The data for variable PRESAPP were obtained from the following website: <http://www.geocities.com/americanpresidencynet/approval.html>. The series adopted to measure the variable UAGI/RAGI were obtained from Feige (1989, 1996, 1997), extended back through 1960. Based on the General Currency Ratio (GCR) model, Feige has estimated the ratio of aggregate *unreported* adjusted gross income to aggregate *reported*

adjusted gross income, using an IRS estimate for this ratio in 1973 of 14.84% as a baseline. Over the study period, mean of the UAGI/RAGI series was 20.28, with a standard deviation of 5.68.

The P-P (Phillips-Perron) unit root test indicates that the variables UAGI/RAGI and AUDIT are stationary only in first differences. The tax variables APT, MPT, and LPT are stationary only in second differences. The variables TF/TEN, PRESAPP, and PEN are stationary in levels. Accordingly, in the estimations, the variables UAGI/RAGI and AUDIT are expressed in first differences, and variables APT, MPT, and LPT are expressed in second differences.

The formal empirical analysis begins with estimating (12) by OLS, adopting the Newey-West heteroskedasticity correction, for the three versions of the specification, corresponding to the income tax measures APT, MPT and LPT. The results of these three estimations are provided in column (a) of Tables 1, 2, and 3, respectively. Each of these cases is considered in sequence.

TABLE 1 - *OLS Estimates Using APT Tax Measure*

Variable	(a)	(b)	(c)	(d)
C	+10.62	+11.97	+13.64	+10.79
TRA	-1.49 (-2.35)	---	---	---
TRA88	---	-0.236 (-0.29)	---	---
TRA89	---	---	+0.766 (+0.73)	---
TRA97	---	---	---	-0.401 (-0.42)
zzAPT	+0.116 (+2.16)	+0.108 (+1.96)	+0.113 (+2.40)	+0.111 (+2.04)
PRESAPP	-0.064 (-1.79)	-0.07 (-2.04)	-0.074 (-2.07)	-0.068 (-1.94)
TFTEN	-6.62 (-1.98)	-7.69 (-2.05)	-9.394 (-2.16)	-6.26 (-1.71)
zAUDIT	-0.79 (-2.43)	-0.818 (-2.56)	-0.892 (-2.84)	-0.723 (-1.92)
PEN	-0.195 (-2.21)	-0.218 (-2.62)	-0.241 (-3.14)	-0.218 (-2.33)
R ²	0.32	0.30	0.31	0.30
AdjR ²	0.28	0.25	0.26	0.25
DW	1.73	1.74	1.81	1.75

Notes: Terms in parentheses are t-values. Also, z is first difference operator, and zz is second-difference operator. Finally, $z(\text{UAGI/RAGI})_t$ is dependent variable.

In column (a) of Table 1, all six of the estimated coefficients exhibit the expected signs, with five of the six being significant at the five percent level and one being significant at the seven percent level. The inferences that follow from this estimate are that the aggregate degree of federal personal income taxation is an increasing function of the tax rate (APT, in this case), a result consistent with Clotfelder (1983), Slemrod (1985), Feige (1994) and others, while being a decreasing function of the Presidential approval rate (PRESAPP), albeit at only the seven percent significance level, the interest penalty on detected unpaid income taxes (PEN), the IRS audit rate (AUDIT), and the ratio of the interest rate yield on tax-free bonds to taxable bonds (TFTEN), as suggested in Cebula (2004). In addition, it appears that the TRA, as measured initially (in terms of just the period 1986-1987) exercised a negative and significant (at roughly the 2.5 percent level) impact on the aggregate degree of federal personal income taxation. This finding is potentially suggestive of a positive reaction to the TRA on the part of households, i.e., arguably they may have been less resentful of paying federal personal income taxes to the extent that they regarded the TRA as a genuine effort at tax reform, i.e., increased equity, simplicity, and reduced tax rate progressivity, as well as other attributes that might be associated therewith.

Focusing on column (a) in Tables 2 and 3 enables us potentially to discern whether the aggregate degree of federal personal income tax compliance/evasion is sensitive to the choice of income tax rate measure and more, importantly, whether the apparent impact of the TRA is altered as a consequence. Starting first with Table 2, where that tax rate measure is MPT, the results in this estimate are actually somewhat more robust overall than those in column (a) of Table 1. In particular, all six of these estimated coefficients exhibit the expected signs and are significant at the five percent level or beyond. In this instance, the coefficient on the PRESAPP variable is now significant at the five percent level. More relevantly, the estimated coefficient on the TRA variable in this case is significant at the one percent level, lending additional and arguably more compelling evidence of the negative impact of the TRA variable (as measured) on aggregate federal personal income tax evasion. As for column (a) of Table 3, where LPT is the tax rate measure, the overall results are even more robust than those in column (a) of Table 2. Namely, all six estimated coefficients exhibit the hypothesized signs, with one (TRA) significant at the one percent level, two significant at the 2.5 percent level (AUDIT and PEN), and the remaining variables significant at

roughly the four percent level (PRESAPP, TFTEN, and LPT). In this estimate, there once again *appears* to be compelling evidence that the TRA may have acted in the aggregate to reduce tax evasion/increase tax compliance on the part of households.

If the Tax Reform Act of 1986 in fact generated such good will, it would seem reasonable to expect to see evidence that its effects would somehow endure the test of time, i.e., carry over into future years beyond simply 1987. Alternatively stated, if the TRA does *not* exhibit negative and significant coefficients beyond the 1986-1987 period, it would be difficult to refute the Slemrod (1992) argument that the increased federal personal income tax compliance immediately following the enactment of the Tax Reform Act of 1986 was merely a reflection of an at least somewhat tax-evasion-prone public learning the complexities of the new tax law and finding ways to circumvent the challenging problematic new components of the Internal Revenue Code resulting from that law.

To test this perspective, three alternative versions of the basic model are estimated in Tables 1 through 3. In the first version, the results for which are found in column (b) in each of the Tables, TRA is replaced by TRA88, which is a dummy variable with a value of 1 for each of the years from 1986 through 1988. In the second version, the results for which are found in column (c) of each of the Tables, TRA is replaced by TRA89, which is a dummy variable with a value of 1 for each of the years from 1986 through 1989. Finally, in the third alternative version of the basic model, the results for which are found in column (d) of each of the Tables, TRA is replaced by TRA97, which is a dummy variable with a value of 1 for each of the years from 1986 through 1997, the last year of the study period.

Consider first the results in columns (b), (c), and (d) of Table 1. Although there certainly are differences in significance levels and to a lesser degree differences in coefficient sizes, the estimated results for variables APT, PRESAPP, TFTEN, AUDIT, and PEN in columns (b), (c), and (d) are largely consistent with their counterparts as shown in column (a). However, the results for the tax reform dummy variables differ dramatically. In particular, whereas the TRA dummy in its 1986-1987 form was negative and statistically significant at the 2.5 percent level, the TRA dummies for 1986-1988, 1986-1989, and 1986-1997 all fail to be statistically significant at even the ten percent level. Indeed, one of these coefficients is actually positive. Thus, based on the results using the *average federal personal income tax rate* as the tax rate measure, the evidence indicates that the decline in aggregate federal personal income tax evasion/increase in federal

income tax compliance by households in response to the Tax Reform Act of 1986 no longer manifested itself after 1987.

Consider next Table 2, where the income tax measure is the *maximum marginal federal income tax rate*. As was the case in Table 1, the results in columns (b), (c), and (d) for the variables MPT, PRESAPP, TFTEN, AUDIT, and PEN are generally compatible with their counterparts as shown in column (a) of Table 2. However, this observation certainly does not apply to the tax reform dummy variables. Whereas the TRA dummy in column (a) of Table 2 is negative and statistically significant at the one percent level, the TRA dummies for the 1986-1988, 1986-1989, and 1986-1997 period all fail to be significant at even the ten percent level. This pattern of results for the TRA dummies parallels that found in Table 1.

Finally, consider Table 3, where the income tax measure is the *minimum marginal federal personal income tax rate*. Once again,

TABLE 2 - OLS Estimates Using MPT Tax Measure

Variable	(a)	(b)	(c)	(d)
C	+10.88	+10.88	+13.58	+11.08
TRA	-1.45 (-2.67)	---	---	---
TRA88	---	-0.295 (-0.39)	---	---
TRA89	---	---	+0.774 (+0.72)	---
TRA97	---	---	---	-0.40 (-0.50)
zzMPT	+0.058 (+2.15)	+0.048 (+1.93)	+0.054 (+2.19)	+0.05 (+1.95)
PRESAPP	-0.073 (-2.26)	-0.08 (-2.44)	-0.08 (-2.47)	-0.077 (-2.47)
TFTEN	-6.25 (-1.99)	-7.10 (-2.10)	-8.72 (-2.71)	-5.94 (-1.82)
zAUDIT	-0.801 (-2.66)	-0.82 (-2.70)	-0.892 (-2.98)	-0.743 (-2.31)
PEN	-0.21 (-2.46)	-0.231 (-2.80)	-0.258 (-3.38)	-0.227 (-2.46)
R ²	0.32	0.30	0.31	0.30
AdjR ²	0.29	0.26	0.27	0.26
DW	1.82	1.82	1.88	1.83

Notes: Terms in parentheses are t-values. Also, z is first difference operator, and zz is second-difference operator. Finally, $z(\text{UAGI}/\text{RAGI})_t$ is dependent variable.

the results for the non-TRA variables, namely in this case, LPT, PRESAPP, TFTEN, AUDIT, and PEN, are compatible with their counterparts in column (a). In addition, as was the case in Tables 1 and 2, the results for the tax reform dummy variable differ dramatically from that found in column (a). In particular, whereas the coefficient on the TRA dummy variable is negative and significant at the one percent level in the 1986-1987 form found in column (a) of Table 3, the estimated coefficients for the TRA dummies for 1986-1988, 1986-1989, and 1986-1997 all fail to be significant at even the ten percent level.

TABLE 3 - *OLS Estimates Using LPT Tax Measure*

Variable	(a)	(b)	(c)	(d)
C	+11.21	+11.98	+13.06	+11.39
TRA	-1.41 (-2.72)	---	---	---
TRA88	---	-0.50 (-0.80)	---	---
TRA89	---	---	+0.244 (+0.26)	---
TRA97	---	---	---	-0.389 (-0.46)
zzLPT	+0.309 (+2.12)	+0.304 (+1.96)	+0.286 (+1.81)	+0.30 (+1.91)
PRESAPP	-0.07 (-2.24)	-0.076 (-2.41)	-0.073 (-2.43)	-0.076 (-2.46)
TFTEN	-6.65 (-2.10)	-7.17 (-2.17)	-8.24 (-2.63)	-6.35 (-1.91)
zAUDIT	-0.67 (-2.46)	-0.69 (-2.56)	-0.727 (-2.65)	-0.619 (-1.93)
PEN	-0.21 (-2.45)	-0.23 (-2.76)	-0.25 (-3.27)	-0.233 (-2.58)
R ²	0.33	0.31	0.31	0.31
AdjR ²	0.20	0.28	0.27	0.28
DW	1.90	1.87	1.89	1.88

Notes: Terms in parentheses are t-values. Also, z is first difference operator, and zz is second-difference operator. Finally, z(UAGI/RAGI)_t is dependent variable.

5. CONCLUSION

This study, which covers the period 1960 through 1997, endeavors to determine whether the Tax Reform Act of 1986, which Musgrave (1987, p. 59) characterized as

“... the most sweeping reform since the early 1940s... that all reformers will welcome”,

was sufficiently appealing to taxpayers as to increase their degree of federal personal income tax compliance. The empirical results in the present study strongly imply that this was *not* the case. More specifically, empirical findings shown in Tables 1, 2, and 3 of the present study consistently show that although federal personal income tax evasion appears to have initially decreased after the passage/enactment of the Tax Reform Act of 1986, that said decrease was not long-lasting. In other words, even if taxpayers did in fact approve of changes introduced under this statute, it was not sufficient to diminish their propensity to underreport taxable income to the IRS. It is noteworthy that the same conclusions are reached using alternative data sets for measuring personal federal income tax evasion, such as Tanzi (1982, 1983) and Ledbetter (2004).

Indeed, the results strongly support the position taken by Slemrod (1992, p. 46) that the Tax Reform Act of 1986 constituted a large change in the Internal Revenue Code and

“... that any large change in the tax law will increase the cost of compliance *for a while* as taxpayers learn about and adjust to the new law”.

Indeed, Slemrod (1992, p. 46) elaborates that

“... even a tax change that simplified the tax system in the long run might increase the cost of compliance [only] in the short run”.

In principle, Musgrave (1987) would probably not have been surprised by these findings. Indeed, Musgrave (1987, p. 59) did not hesitate to observe that

“... the reform... is far from complete”.

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REFERENCES

- Ali, M.M., H.W. Cecil and J.A. Knoblett (2001), "The Effects of Tax Rates and Enforcement Policies on Taxpayer Compliance: A Study of Self-Employed Taxpayers", *Atlantic Economic Journal*, 29(2), 186-202.
- Allingham, M.G. and A. Sandmo (1972), "Income Tax Evasion", *Journal of Public Economics*, 1(3), 323-338.
- Alm, J., B. Jackson and M. McKee (1992), "Institutional Uncertainty and Taxpayer Compliance", *American Economic Review*, 82(4), 1018-1026.
- Alm, J., G.H. McClelland and W.D. Schulze (1999), "Changing the Social Norm of Tax Compliance by Voting", *Kyklos*, 52(1), 141-171.
- Baldry, J.C. (1987), "Income Tax Evasion and the Tax Schedule: Some Experimental Results", *Public Finance/Finances Publiques*, 42(3), 357-383.
- Barth, J.R. (1991), *The Great Savings and Loan Debacle*, American Enterprise Institute Press: Washington, DC.
- Barth, J.R. and R.D. Brumbaugh (1992), *The Reform of Federal Deposit Insurance*, Harpercollins Publishers: New York.
- Bawley, D. (1982), *The Subterranean Economy*, McGraw-Hill: New York.
- Caballe, J. and J. Panades (1997), "Tax Evasion and Economic Growth", *Public Finance/Finances Publiques*, 52(3), 318-340.
- Cagan, P. (1958), "The Demand for Currency Relative to the Total Money Supply", *Journal of Political Economy*, 66(3), 303-328.
- Carson, C. (1984), "The Underground Economy: An Introduction", *Survey of Current Business*, 64(1), 24-35.
- Cebula, R.J. (2001), "Impact of Income-Detection Technology and Other Factors on Aggregate Income Tax Evasion: The Case of the United States", *Banca Nazionale del Lavoro Quarterly Review*, 54(4), 401-415.
- Cebula, R.J. (2004), "Income Tax Evasion Revisited: The Impact of Interest Rate Yields on Tax-Free Municipal Bonds", *Southern Economic Journal*, 71(2), 418-423.
- Cebula, R.J. and I.S. Saltz (2001), "An Empirical Note on Tax Auditing and the Size of the Underground Economy in the U.S., 1962-1980", *International Review of Business and Economics*, 48(1), 119-124.
- Clotfelter, C.T. (1983), "Tax Evasion and Tax Rates: An Analysis of Individual Returns", *Review of Economics and Statistics*, 65(2), 363-373.
- Council of Economic Advisors (2007), *Economic Report of the President, 2007*, U.S. Government Printing Office: Washington, DC.
- Das-Gupta, A. (1994), "A Theory of Hard-to-Tax Groups", *Public Finance/Finances Publiques*, 49(1), 28-39.
- Erard, B. and J.S. Feinstein (1994), "The Role of Moral Sentiments and Audit Perceptions in Tax Compliance", *Public Finance/Finances Publiques*, 49(1), 70-89.

- Falkinger, J. (1988), "Tax Evasion and Equity: A Theoretical Analysis", *Public Finance/Finances Publiques*, 43(3), 388-395.
- Feige, E.L. (1989), *The Underground Economies: Tax Evasion and Information Distortion*, Cambridge University Press: Cambridge.
- Feige, E.L. (1994), "The Underground Economy and the Currency Enigma", *Public Finance/Finances Publiques*, 49(1), 119-136.
- Feige, E.L. (1996), "Overseas Holdings of U.S. Currency and the Underground Economy", in S.Pozo (Ed.), "Exploring the Underground Economy", W.E. Upjohn Institute for Employment Research: Kalamazoo, MI.
- Feige, E.L. (1997), *Revised Estimates of the Size of the U.S. Underground Economy: Implications of U.S. Currency Held Abroad*, in: O. Lippert, M. Walker (Eds), "The Underground Economy: Global Evidence of its Size and Impact", Fraser Institute: Vancouver, Canada.
- Friedland, N. (1982), "A Note on Tax Evasion as a Function of the Quality of Information about The Credibility of Threatened Fines: Some Preliminary Research", *Journal of Applied Social Psychology*, 12(1), 54-59.
- <http://www.geocities.com/americanpresidencynet/approval.html>
- Internal Revenue Service (1960-1997), *Annual Report of the Commissioner and Chief Counsel of the Internal Revenue Service*, U.S. Government Printing Office: Washington, DC.
- Internal Revenue Service (2003), *Statistics of Income*, U.S. Government Printing Office: Washington, DC.
- Klepper, S., D. Nagin and S. Spurr (1991), "Tax Rates, Tax Compliance, and the Reporting of Long-Term Capital Gains", *Public Finance/Finances Publiques*, 46(2), 236-251.
- Ledbetter, M. (2004), "A Comparison of BEA Estimates of Personal Income and IRS Estimates of Adjusted Gross Income", *Survey of Current Business*, 84(1), 8-22.
- Musgrave, R.A. (1987), "Short of Euphoria", *Journal of Economic Perspectives*, 1(1), 59-71.
- Ott, A.F. and S.B. Vegari (2003), "Tax Reform: Chasing the Elusive Dream", *Atlantic Economic Journal*, 31(3), 266-278
- Pestieau, P., U. Possen and S. Slutsky (1994), "Optimal Differential Taxes and Penalties", *Public Finance/Finances Publiques*, 49(1), 15-27.
- Pozo, S. (1996), *Exploring the Underground Economy*, W.E. Upjohn Institute for Employment Research: Kalamazoo, MI.
- Pyle, D. (1989), *Tax Evasion and the Black Economy*, St. Martin's Press: New York.
- Sanger, G.C., C.F. Sirmans and G.K. Turnbull (1989), "The Effects of Tax Reform on Real Estate: Some Empirical Estimates", *Land Economics*, 65(3), 409-424.

- Slemrod, J.B. (1985), "An Empirical Test for Tax Evasion", *Review of Economics and Statistics*, 67(2), 232-267.
- Slemrod, J.B. (1992), "Did the Tax Reform Act of 1986 Simplify Tax Matters?", *Journal of Economic Perspectives*, 6(1), 45-57.
- Spicer, M.W. and S.B. Lundstedt (1976), "Understanding Tax Evasion", *Public Finance/Finances Publiques*, 31(2), 295-305.
- Spicer, M.W. and J.E. Thomas (1982), "Audit Probabilities and the Tax Evasion Decision: An Experimental Approach", *Public Finance/Finances Publiques*, 37(2), 241-245.
- Tanzi, V. (1982), *The Underground Economy in the United States and Abroad*, Lexington Books: Lexington, MA.
- Tanzi, V. (1983), "The Underground Economy in the United States: Annual Estimates, 1930-1980", *IMF Staff Papers* 30(3), 283-305.
- Thurman, Q.C. (1991), "Taxpayer Noncompliance and General Prevention: An Expansion of The Deterrence Model," *Public Finance/Finances Publiques*, 46(2), 289-298.

ABSTRACT

The Tax Reform Act of 1986 (TRA) has sometimes been portrayed as a genuine effort to introduce fairness, simplicity, and economic growth considerations into the Internal Revenue Code of the U.S. Although regarding the TRA as far from adequate, the late Richard Musgrave did in fact regard this statute as yielding many significant changes that improved the equity and efficiency of the process of federal income taxation. The present study investigates empirically whether the TRA was so well received by taxpayers as to increase (at least in theory) the degree of federal personal income tax compliance. Although the estimates imply that this may have initially been the case, a more in-depth analysis reveals that the TRA actually exercised a statistically zero net impact on the aggregate degree of personal income tax compliance over the longer run, implying that the TRA merely required a sufficient amount of time for tax evaders to learn the new law so that they could ultimately resume their tax-evasion ways.

Keywords: Tax Reform, Tax Reform Act, Income Tax Evasion

JEL Classification: H24, H26, K42

RIASSUNTO

*Il Tax Reform Act del 1986:
una valutazione in termini di adempimento spontaneo*

Il Tax Reform Act (TRA) del 1986 è stato talvolta descritto come un serio sforzo per introdurre equità, semplicità e attenzione alla crescita economica nell'Internal Revenue Code degli USA. Richard Musgrave, nonostante ritenga il TRA lontano da una totale adeguatezza, ha riconosciuto che esso ha prodotto molti cambiamenti significativi che hanno migliorato l'equità e l'efficienza del processo di tassazione federale sui redditi personali. Questo studio analizza empiricamente se il TRA sia stato effettivamente accolto dai contribuenti così positivamente da aumentare (almeno teoricamente) il grado di adempimento fiscale. Benché le stime implicino che ciò è avvenuto inizialmente, analisi più approfondite rivelano che, se si considera un periodo di tempo più lungo, il TRA non ha prodotto alcun effetto sui livelli di adempimento: ciò può semplicemente significare che è stato necessario un certo periodo di tempo per trovare adeguati sistemi di evasione.