Impact of income-detection technology and other factors on aggregate income tax evasion: the case of the United States *

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1. Introduction

Numerous studies have investigated income tax evasion behavior. Aside from a variety of principally theoretical models of income tax evasion behavior (Falkinger 1988; Klepper, Nagin and Spurr 1991; Das-Gupta 1994; Pestieau, Possen and Slutsky 1994), there have been a number of studies of such behavior using *a*) questionnaires or experiments (Spicer and Lundstedt 1976; Friedland 1982; Spicer and Thomas 1982; Benjamini and Maital 1985; Alm, Jackson and McKee 1992; Baldry 1987; De Juan 1989; Thurman 1991), or, in some cases, *b*) what De Juan, Lasheras and Mayo (1994) refer to as "official data" (Clotfelter 1983; Slemrod 1985; Pommerehne and Weck-Hannemann 1989; Erard and Feinstein 1994; Feige 1994; McLeod 1997; Cebula 1998; Cebula and Saltz 2000; Ali, Cecil and Knoblett 2001).[1]

It is widely believed that the "degree of income tax evasion in the economy as a whole" (hereafter, "DTE") is affected by income tax rates (Clotfelter 1983, Slemrod 1985, Pommerehne and Weck-Hannemann 1989, Feige 1994, Cebula 1998). Presumably, the higher the

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[1] For example, based on a sample of 716 tax filers in Oregon and audit and income tax data for these same taxpayers obtained from the IRS for 1987, Erard and Feinstein (1994) assess the role of expected tax audits as well as guilt and shame in determining the underreporting of income. Other studies, including Clotfelter (1983), using actual individual tax return information, find that higher tax brackets are associated with higher levels of income underreporting.

pertinent income tax rate, the greater the perceived gross benefit (in terms of a reduced tax liability) from not reporting taxable income. Thus, each time a new income tax statute is implemented, to the extent that effective income tax rates are altered, so too is the incentive to not report or to underreport income. It is also widely accepted that the greater the risk associated with underreporting or not reporting income, the less the degree to which economic agents will choose either to not report or to underreport their taxable income (Friedland 1982; Spicer and Thomas 1982; De Juan 1989; Alm, Jackson and McKee 1992; Erard and Feinstein 1994).

The literature to date has effectively ignored the potential impact on the relative *aggregate* size of the DTE of technologies that have acted to enhance the efficiency of governmental detection of taxable income. Over time, in the U.S., the IRS (Internal Revenue Service) has particularly become increasingly aware of sources and amounts of taxable non-wage (non-W2) income because of continuing improvements in IMP (income-matching-program) technologies. Presumably, these improving technological innovations have increasingly compromised the public's ability to underreport taxable income, although to date this remains unverified conjecture. Of course, these IMP technologies have been used in concert with a variety of IRS auditing and penalty assessment policies specifically intended to increase tax receipts by discouraging the public's underreporting of income. Another factor that has been largely ignored in the empirical literature on aggregate income tax evasion is the public's dissatisfaction with government. Presumably, the more dissatisfied the public is with government, the greater may be the public's *desire* to avoid income taxation. To date, only two studies have expressly considered this impact of public dissatisfaction with government on tax evasion: the study by Feige (1994) for 1973-92 finds no evidence of this behavior, whereas the somewhat more encompassing model in Cebula (1998) does find evidence in support of the behavior for the 1973-94 period. Of course, there is every reason to accept the arguably most basic tenet of the tax evasion theory and research, namely, that higher income tax rates create an incentive to underreport taxable income, *ceteris paribus*.

With this backdrop and based on available revised and updated estimates for the years 1975 through 1997 on the size of the relative

DTE and other relevant variables (including IMP technology) for the U.S., this empirical study has two objectives. First and foremost, it seeks to determine whether improving income-detection technology has significantly acted to reduce the degree of aggregate income tax evasion in the U.S. As a secondary objective, this study also seeks to provide updated and enhanced insights into other determinants of the relative DTE. In particular, as implied above, this empirical study seeks to determine the potential impacts on the relative DTE (in the aggregate) not only of the federal personal income tax rate, IRS audit rates and IRS penalty assessments on detected unreported income, but also the potential impact of the public's dissatisfaction with government (which has been largely neglected in this literature).

Section 2 of this study provides the basic model and identifies formally the key variables in the system. The subsequent section describes the data used to test the model and is followed by the empirical findings section. A summary and overview are found in the concluding section.

2. The basic model

The economy consists of agents who generate economic value that is reflected in the form of income. These economic agents choose whether or not to report none, some, or all of the taxable component of their income to the tax-collecting authority (IRS). To the extent that said taxable income is reported to the IRS, a tax liability is incurred.

In this study, the *relative* probability that the representative economic agent will *not* report 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, *ec*. 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:

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

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, reflects the form of the available data, i.e., data where the DTE in the economy as a whole is expressed in relative terms.

The expected gross benefits from *not* reporting income to the IRS are hypothesized to be an increasing function of the income tax rate (Cagan 1958, Bawley 1982, Tanzi 1982 and 1983, Clotfelter 1983, Slemrod 1985, Pyle 1989, Feige 1994). This study focuses on the federal personal income tax rate (*PT*), such that:

$$eb = g(PT), \quad g_{PT} > 0 \tag{2}$$

In addition, following a suggestion introduced by Feige (1994), it is hypothesized that a growing or high level of public dissatisfaction with the performance of government and/or a growing or high level of public distrust and resentment of government may contribute to the DTE in the economy. It might, for example, be argued that the more the public resents how government officials conduct themselves, fail to fulfill obligations to the public and spend tax dollars, the more benefit (utility) people derive from avoiding taxes through the underreporting of income to the IRS, i.e., the greater will be the subjective benefits of tax avoidance. Hence, as suggested in Feige (1994), the greater the public's dissatisfaction with government (DIS), the larger may be the DTE. Thus, equation 2 can be expanded to:

$$eb = h(PT, DIS), \quad h_{PT} > 0, h_{DIS} > 0 \tag{2'}$$

The expected gross costs of not reporting income to the IRS are anticipated to be an increasing function of the risks thereof, which can include penalties (Pestieau, Possen and Slutsky 1994) such as fines, interest on unpaid past tax liabilities, an increased likelihood of IRS audits in the future (Alm, Jackson and McKee 1992; Pestieau, Possen and Slutsky 1994; Erard and Feinstein 1994) and/or imprisonment, as well as potential fees resulting from legal or other representation. In this study, to the representative economic agent in the society, the expected penalty from not reporting taxable income to the IRS, *if* said activity is detected by the IRS, is *proximately* measured by the total pecuniary penalty (including both penalties and interest) previously assessed by the IRS (aside from added tax liabilities per se) per audited tax return (*PEN*). Furthermore, these risks (potential costs) are presumably enhanced by an increase in AUDIT, the percentage of filed federal income tax returns that is formally audited by the IRS. Indeed, the experience of an IRS tax audit would imply potential non-pecuniary ('psychic') costs as well as pecuniary costs (such as outlays for legal or other representation, along with the value of one's own time) above and beyond any potential added taxes and penalties (including interest) per se. Finally, the ability to successfully underreport taxable income, especially taxable non-wage (non-W2) income, is influenced by the ability of the IRS to detect such income. The IRS's development and innovation of improving IMP technology has over time increased the efficiency of the IRS's ability to detect taxable income, especially taxable non-W2 income per se. Therefore, improving IMP technology (*IMPTECH*) should act to reduce the relative size of the DTE by systematically increasing the risks of detection associated with income-underreporting activities. Thus, we have:

$$ec = j(AUDIT, PEN, IMPTECH), \quad j_{AUDIT} > 0, \quad j_{PEN} > 0, j_{IMPTECH} > 0 \tag{3}$$

In principle, these risk factors are essentially based on the theoretical model in Pestieau, Possen and Slutsky (1994), and to some degree on Alm, Jackson and McKee (1992) and Erard and Feinstein (1994).

Substituting from (2') and (3) into (1) yields:

$$pnr/(1 - pnr) = b(PT, DIS, AUDIT, PEN, IMPTECH), \tag{4}$$

where $b_{PT} > 0, b_{DIS} > 0, b_{AUDIT} < 0, b_{PEN} < 0, b_{IMPTECH} < 0$.

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

$$UAGI = (pnr)*AGI \tag{5}$$

and

$$RAGI = (1 - pnr)*AGI \tag{6}$$

since $(pnr)*AGI + (1 - pnr)*AGI = UAGI + RAGI = AGI$.

It then follows that:

$$UAGI/RAGI = (pnr)*AGI/(1 - pnr)*AGI = (pnr)/(1 - pnr) \quad (7)$$

From 4 and 7, we obtain, by substitution for *pnr/(1 – pnr)*:

$$UAGI/RAGI = b(PT, DIS, AUDIT, PEN, IMPTECH) \quad (8)$$

where $b_{PT} > 0, b_{DIS} > 0, b_{AUDIT} < 0, b_{PEN} < 0, b_{IMPTECH} < 0.$

3. Empirical framework

This investigation provides an empirical estimation based on the model represented in 8 above. The personal income tax rate variable is measured in two alternative ways: the average effective federal personal income tax rate (*AEPIT*) and the maximum marginal federal personal income tax rate (*MAXMP*). In addition to *AEPIT* or *MAXMP*, the variable *AUDIT*, which is the percentage of filed federal personal income tax returns that has actually been previously subjected to an IRS audit in each year, is included as a measure of the expected likelihood of being subjected to a formal (non-computer/non-IMP) audit by the IRS. The variable PEN, which is the total pecuniary penalty (inclusive of both penalties per se plus interest) previously assessed by the IRS per audited personal tax return in each year, is included to reflect the penalty (above and beyond unpaid tax liabilities per se) from not reporting income if said activity is detected. As observed above, the variables AUDIT and PEN are adopted in this study as two of the identifiable and quantifiable measures of risks associated with underreporting income. The variable DIS is represented by the 'dissatisfaction index'. This index is constructed as an equally weighted average of three normalized indices reflecting answers to the University of Michigan's Insitute for Social Research (ISR) surveys concerning whether government officials can be trusted (to honor obligations to the public), whether they are dishonest and whether government wastes tax dollars. Values for this index of *dis*satisfaction lie within a range of (–1.5), which corresponds to least dissatisfied, to (+1.5), which corresponds to most dissatisfied: the algebraic value of this index is higher as the public becomes more dissatisfied with government. Finally, to measure the potential impact of IRS income-detection technology on the relative DTE, we use data from the IRS on the estimated degree to which its income-matching program, which is being upgraded (technically improved) over time, detects various forms of taxable non-W2 income.

Adopting the AEPIT (the average effective federal personal income tax rate) as the income-tax-rate measure parallels (Feige 1994, p. 135), we adopt a view that, given the complexity of the Internal Revenue Code and the variety of marginal tax brackets in the Internal Revenue Code, a variable such as AEPIT may be a reasonably useful (albeit only very proximal) measure for tax filers *generally* of tax benefits from underreporting income. Paralleling Feige (1994), we define the variable AEPIT as the ratio of total federal personal income tax collections to aggregate reported *AGI*, expressed as a percentage.[2] As an alternative to *AEPIT*, we consider *MAXMP* (the maximum marginal federal personal income tax rate). It can be argued that this variable potentially may more accurately reflect the degree of progressivity of the federal personal income tax than *AEPIT*. In any case, if the results for variables MAXMP and *AEPIT* are comparable, the credibility of the findings and the model would seem to be increased. The data for *AEPIT* and *MAXMP* were obtained from the IRS (1973-98).

To measure *AUDIT* and *PEN*, respectively, data indicating the percentage of filed federal income tax returns in any given year that were actually audited by the IRS and the total penalty (including interest) assessed by the IRS per formally audited tax return were obtained from the IRS (1973-98). The IRS also provided the data for variable *IMPTECH*, indicating the IRS's estimate of the percentage of aggregate taxable non-W2 income being detected by the IMP-related technology and associated procedures.

Finally, the data for measuring the relative DTE need to be addressed. A number of studies have estimated the magnitude of the DTE for the U.S. Among the major contributions in this endeavor are those by Tanzi (1982, 1983), Feige (1989, 1994), Bawley (1982), Carson (1984), Pozo (1996) and Pyle (1989). Based on such studies,

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[2] Feige (1994, p. 135) states that "[t]he average tax rate is simply the sum of total government tax receipts divided by AGI [aggregate]." In the present investigation, variable AEPIT is total federal government income tax receipts *from individuals* divided by the aggregate reported AGI level.

there appear to be at least three primary approaches to estimating the size of the DTE (or of the underground economy):

1) the *AGI* gap approach;

2) the Taxpayer Compliance Measurement Program (TCMP); and

3) Currency Ratio Models, including the General Currency Ratio (GCR) model.

For the purposes of this study, in order to measure the DTE in the economy as a whole, the series generated by Edgar Feige is adopted. Feige has generated revised and updated estimates of aggregate unreported income (*UAGI*) as a percent of *reported* aggregate adjusted gross income (*RAGI*) based on the GCR model, employing an IRS estimate of unreported income for 1973 as the base year (see Feige 1996 and 1997). Since revised and updated data are available for the years 1973-97 and since these appear to be the most up-to-date such data set presently available, this series is adopted as the dependent variable measure (*UAGI/RAGI*) in the analysis, although due to limitations on the data for variable *IMPTECH*, the *DTE* data for the years 1973 and 1974 are not considered.

4. Empirical estimates

Based on the model in equation 8 and the data described in Section 3, as well as the reasoning above, we initially estimate the following reduced-form equations:

$$(UAGI/RAGI)_t = a_0 + a_1\,AEPIT_{t-1} + a_2\,AUDIT_{t-1} + a_3\,PEN_{t-1} + a_4\,DIS_{t-1} + a_5\,IMPTECH_t + a_6\,TREND + \mu \quad (9)$$

$$(UAGI/RAGI)_t = b_0 + b_1\,MAXMP_{t-1} + b_2\,AUDIT_{t-1} + b_3\,PEN_{t-1} + b_4\,DIS_{t-1} + b_5\,IMPTECH_t + b_6\,TREND + \mu' \quad (10)$$

where: a_0, b_0 = constant terms;

$(UAGI/RAGI)_t$ = aggregate unreported adjusted gross income as a percentage of aggregate reported adjusted gross income in year *t*, *t* = 1975, ..., 1997;

$AEPIT_{t-1}$ = the average effective federal personal income tax rate in year t–1, i.e., total federal personal income tax collections in year t–1 divided by the total reported AGI in year t–1, as a percent;

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

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

PEN_{t-1} = the average penalty from underreporting income to the IRS in year t–1, computed as the total pecuniary penalty, including interest charges, on detected unreported taxable income, as assessed by the IRS per audited personal income tax return in year t–1;

DIS_{t-1} = the dissatisfaction index for year t–1 derived by the University of Michigan's Institute for Social Research (ISR); DIS values lie within a range of (–1.5) up to (+1.5);

$IMPTECH_t$ = the IRS's *estimated* percentage of the aggregate taxable non-W2 income that was detected by IMP (income-matching program) technology in year t;

TREND = a trend variable;

$m, m¢$ = stochastic error terms.

The time series examined in this study are annual and cover the 1975-97 period. This represents the longest period for which *all* of the data for the model are currently available. Both the Augmented-Dickey Fuller (ADF) and Phillips-Perron (P-P) test statistics indicate that certain of the variables in equation 9 are stationary only in first differences (*MAXMP*, *PEN*, *AUDIT* and *IMPTECH*), whereas one variable is stationary in levels with a trend [(UAGI/RAGI)]. The two remaining explanatory variables (*AEPIT* and *DIS*) are stationary in levels. Consequently, in the estimation provided in equation 10, variables *MAXMP*, *PEN*, *AUDIT* and *IMPTECH* are expressed in first-differences form, and a trend variable (*TREND*) is included. *TREND* is included to assure stationarity of the tax-evasion measure; however, the conclusions are unchanged if *TREND* is omitted.

In equation 9, one of the explanatory variables, *IMPTECH*, is contemporaneous with the dependent variable (UAGI/RAGI). This specification implies that the income-detection technology that is in place during year *t* is the technology that will affect the IRS's detection of underreported taxable income in that same year. This argument notwithstanding, to demonstrate the robustness of the model, separate estimations are provided in this study by equations 13 and 14, where *IMPTECH* is lagged one period (along with the remainder of the explanatory variables in the system).

In any event, given that (UAGI/RAGI) is contemporaneous with *IMPTECH* in equation 9, the possibility of simultaneity bias arises. Accordingly, this initial specification is estimated using an IV (Instrumental Variables) technique, with the instrument being the two-year lag of the growth rate of real GDP (Y_{t-2}); these data were obtained from the Council of Economic Advisors (1999, Table B-2). The choice of instrument is based on the finding that *IMPTECH* is highly correlated with Y_{t-2}, whereas Y_{t-2} presumably is uncorrelated (or not significantly correlated) with the error terms in the system.

IV estimation of equation 9, after adopting the White (1980) procedure to correct for heteroskedasticity, yields:[3]

$$\begin{aligned}(UAGI/RAGI)_t = &+ 8.18 + \underset{(+4.46)}{1.29\,AEPIT_{t-1}} - \underset{(-2.22)}{4.91\,\delta AUDIT_{t-1}} \\ &- \underset{(-2.20)}{0.0004\,\delta PEN_{t-1}} + \underset{(+2.88)}{2.44\,DIS_{t-1}} - \underset{(-5.58)}{1.373\,\delta IMPTECH_t} - \underset{(-7.42)}{0.15\,TREND}\end{aligned}$$

$$DW = 1.83,\ Rho = 0.08,\ F(6,16) = 13.69 \qquad (11)$$

$$\begin{aligned}(UAGI/RAGI)_t = &+ 26.89 + \underset{(+3.04)}{0.09\,\delta MAXMP_{t-1}} - \underset{(-2.98)}{6.36\,\delta AUDIT_{t-1}} \\ &- \underset{(-2.30)}{0.00036\,\delta PEN_{t-1}} + \underset{(+2.18)}{2.28\,DIS_{t-1}} - \underset{(-2.61)}{0.916\,\delta IMPTECH_t} - \underset{(-8.31)}{0.02\,TREND}\end{aligned}$$

$$DW = 1.77,\ Rho = 0.097,\ F(6,16) = 14.98 \qquad (12)$$

where terms in parentheses are t-values and *d* is the first-differences operator. In equations 11 and 12, all of the right-hand-side (explanatory) variables are statistically significant at the 5% level or beyond, whereas the F-statistics are significant at the 1% level.

As shown in equations 11 and 12, the estimated coefficients on the *AEPIT* and *MAXMP* variables are positive (as expected) and signifi-

[3] The null hypothesis of homoskedasticity is rejected at the 95% confidence level.

cant at the 1% level. Thus, it appears that the higher the average effective federal personal income tax rate *or* the higher the maximum marginal federal personal income tax rate, the larger the relative *DTE*. This finding is consistent with the study of data from audits of individual tax returns by Clotfelter (1983), who finds underreporting of income to be an increasing function of marginal tax rates. The results in the present study are also consistent with the findings based on 'official data' in Slemrod (1985) and Pommerehne and Weck-Hannemann (1989), as well as the findings based upon experimentation in Baldry (1987), Alm, Jackson and McKee (1992), and Benjamini and Maital (1985). Finally, these results are also consistent with the regression estimate in Feige (1994, p. 135, no. 19), where the relative *DTE* is regressed in levels against a lagged tax variable (and a lagged second variable, *D*, which corresponds to the variable *DIS* in the present study).[4]

Next, the estimated coefficients on the AUDIT variable are negative (as hypothesized) and statistically significant in equations 11 and 12 at the 4% level and at the 1% level, respectively, a result consistent with the findings in studies of three alternative data sets for earlier time periods (McLeod 1997; Cebula and Saltz 2000; Ali, Cecil and Knoblett 2001), although at odds with the findings in Cebula (1998). In addition, the estimated coefficients on the PEN variable are negative (also as hypothesized) and significant at the 4% level. Thus, as tax evasion theory predicts, the greater the risk and penalty from underreporting income, as measured in this study by variables *AUDIT* and *PEN*, the smaller the *DTE*.

The estimated coefficients on the *DIS* variable are positive (as expected) and significant at the 1% level and at the 5% level, respectively, in equations 11 and 12. Thus, there is evidence that dissatisfaction with government impacts positively on the relative *DTE*. Apparently, the more dissatisfied the public is with government, the greater the extent to which the public chooses to underreport income. Whereas this finding contrasts with Feige (1994), it is consistent with the model using 1973-1994 data in Cebula (1998).

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[4] The Feige (1994) estimate includes two explanatory variables, an average effective income tax rate and a 'dissatisfaction index', *D*, regarding government. This same index is used in the present study to measure variable *DIS*.

Finally, and perhaps most interestingly, the coefficients on the variable $IMPTECH_t$ are negative and statistically significant at the 1% level and at the 2% level, respectively, in equations 11 and 12. As suggested above, this finding arguably reflects the impact on the relative *DTE* of technology that results in increasing the efficiency of the IRS's detection of taxable non-W2 income. In other words, as the IRS becomes increasingly aware of sources and amounts of taxable non-W2 income because of IMP-technology improvements over time, the public's expected ability to and hence proclivity to underreport income both decline, and the relative size of the underground economy diminishes, *ceteris paribus*.

It should be noted that estimating equations 9 and 10 with the variable *IMPTECH* lagged one year yields results that are consistent with those shown in equations 11 and 12. Indeed, this is demonstrated in the OLS re-estimations of equations 9 and 10 given below, where, once again, the White (1980) procedure is adopted to correct for heteroskedasticity:

$$(UAGI/RAGI)_t = 12.6 + \underset{(+2.58)}{1.16\, AEPIT_{t-1}} - \underset{(-3.28)}{7.16\, \delta AUDIT_{t-1}}$$

$$-\underset{(-2.16)}{0.00079\, \delta PEN_{t-1}} + \underset{(+3.65)}{3.81\, DIS_{t-1}} - \underset{(-4.01)}{0.13\, \delta IMPTECH_{t-1}} - \underset{(-1.08)}{0.13\, TREND}$$

$$DW = 1.55,\ Rho = 0.16,\ R^2 = 0.79,\ adj.R^2 = 0.73,\ F(6,16) = 12.76 \qquad (13)$$

$$(UAGI/RAGI)_t = 34.24 + \underset{(+3.47)}{0.145\, \delta MAXMP_{t-1}} - \underset{(-4.24)}{8.97\, \delta AUDIT_{t-1}}$$

$$-\underset{(-1.56)}{0.0006\, \delta PEN_{t-1}} + \underset{(+4.38)}{3.46\, DIS_{t-1}} - \underset{(-5.34)}{0.198\, \delta IMPTECH_{t-1}} + \underset{(-1.59)}{0.11\, TREND}$$

$$DW = 1.63,\ Rho = 0.15,\ R^2 = 0.83,\ adj.R^2 = 0.77,\ F(6,16) = 15.19 \qquad (14)$$

4. Conclusion

Based on the empirical findings in this study for the period 1975-97, it appears that the relative *DTE* is an increasing function of the federal personal income tax rate (as measured by the *AEPIT* or *MAXMP*) and the public's level of dissatisfaction with government. It also appears that the relative *DTE* is a decreasing function of IRS penalty assessments (penalties plus interest) on detected unpaid taxes (i.e., on detected unreported taxable income) and IRS audit rates. In addition, the significant and negative coefficient on the variable *IMPTECH* indicates the negative impact on the *DTE* as a result of technology whose innovation, over time, has provided the IRS with increasingly accurate information on sources and amounts of taxable non-W2 income.[5]

Among other things, it appears that growth in the relative *DTE* might, at least in theory, be diminished by increased IRS penalties on detected unreported income as well as by increased IRS audit rates. Of course, it remains to be seen whether such actions are viable (politically feasible). Moreover, such policy actions must also be carefully evaluated in a general equilibrium cost-benefit framework. However, it also appears that restraint from further increases in federal personal income tax rates might help to at least limit the relative *DTE*. Indeed, it may well be that reductions in such rates could over time lead to increased tax revenues for the IRS. Finally, it also appears likely that continued IRS efforts to improve/upgrade and innovate its IMP technology and related procedures would positively impact on income tax collections in the U.S.

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[5] In alternative estimates, a dummy variable to account for inflation indexing, which was introduced into the Internal Revenue Code under provisions of the Tax Reform Act of 1986, was included in the model but was found to exercise no statistically significant impact on tax evasion.

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