INCOME TAX AVOIDANCE AND EVASION:

A Narrow Bracketing Approach

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INTRODUCTION

OVERVIEW

Tax structure, Non-compliance, and Tax Administration

Evasion and avoidance alter effective tax rates

Relevant phenomenon affecting all economic subjects

Numerous aspects of the phenomenon have not been addressed yet

RELATED LITERATURE

Becker, 1968; Yitzhaki 1974

Economics of Crime applied to Tax Evasion

Alm, 1988; Alm & MCCallin 1990

First models considering both Avoidance and Evasion

Feldstein 1999

Taxonomy of Avoidance Schemes

Slemrod 2001

Impact of Avoidance on Leisure-Work Choice

Hoopes et al. 2012

Effectiveness of Anti-Avoidance Deterrence

RESEARCH GOALS

Provide a model where both **evasion** and **avoidance** are considered

Account for insights from **psychology** and **behavioural economics**

Analyse the impact of different **tax enforcement** instruments on **compliance**

THE MODEL

THE MODEL

Evasion is costless but carries a fine if detected

Avoidance bought from promoters - “no saving, no fee”

Avoidance is costly but is not fined when detected

Taxpayers are **heterogeneous in income**

Taxpayers are **risk averse** (CRRA)

BEHAVIOURAL ASPECTS:

Multi-dimensional decisions tend to be **sequentially broken down** (Tversky and Kahneman 1981)

Salient traits of the decision determines **decision staging** (Kahneman 2003, McCaffery and Baron 2004)

Lawfulness of avoidance Vs **illegality** of evasion (Kirchler 2003, Barker 2009)

Modelling The Decision

Taxpayers exhaust the scope for legal avoidance before performing evasion:

The joint decision **{avoidance**, **evasion}** is sequentially decomposed into narrow brackets **{avoidance}** followed by **{evasion}**

MODEL

Relevant Parameters and variables:

w Taxpayer exogenous income $[\overline{w}, \underline{w}]$
$t \in (0,1)$ Linear Tax Rate
$\phi \in (0,1)$ Linear fee on avoided tax
$f > 0$ Linear fine on evaded tax debt
$p \in (0,1)$ Probability of audit
$A \in [0, w]$ Avoided income
$E \in [0, w - A]$ Evaded income
x Declared income

If audited:

- Evaded income is discovered
- Avoidance scheme is shut down with $p_L \in (0, 1]$

EXPECTED AFTER-TAX INCOME

Disposable income if not audited

$$\mathbb{E}[U](A,E) = [1-p]\,U(w^n) + pp_L U(w^{a_s}) + p\,[1-p_L]\,U(w^{a_u})$$

Where:

Taxpayer income if not audited

$w^n(A,E) = w - t\,[w - A - E] - \phi tA$

Taxpayer income if audited upon successful legal challenge

$w^{a_s}(A,E) = w - t\,[w - E] - [1+f]\,tE - \phi tA$

Taxpayer income if audited upon unsuccessful legal challenge

$w^{a_u}(A,E) = w - t\,[w - A - E] - [1+f]\,tE - \phi tA$

ANALYSIS

TAXPAYER'S PROBLEM

Taxpayer's optimal Avoidance and Evasion under Narrow Bracketing:

$$A^* = \arg\max_A \mathbb{E}[U]\,(A, 0)$$
$$E^* = \arg\max_E \mathbb{E}[U]\,(A^*, E)$$

We characterize first the simpler case where $p_L = 1$
At an interior optimum it is:

$$A^* = \frac{pR(t)}{1-\phi}\left[R(p)\,R(\phi) - 1\right] w$$
$$E^* = \frac{pR(t)}{1-\phi}\frac{[1-p]\,[1-fR(\phi)]}{f} w$$

Where $R(z) = (1-z)/z$

SOME REMARKS

The conditions for an interior optimum are:

$$R(p)R(\phi) > 1 > fR(\phi)$$

$$\frac{pR(t)}{1-\phi}\frac{[1-p][1-fR(\phi)]+f[R(p)R(\phi)-1]}{f} < 1.$$

Avoidance and Evasion are linearly and negatively related

$$E^*\left(A^*\right) = \frac{p\left[wR\left(t\right)-\phi A^*\right]\left[R(p)-f\right]}{f} - pA^*$$

COMPARATIVE STATICS

	A^*	E^*	$A^* + E^*$
w	$+$	$+$	$+$
t	$-$	$-$	$-$
f	0	$-$	$-$
ϕ	$-$	$+$	$+/-$
p	$-$	$+/-$	$+/-$

Comparative statics for interior A^*, E^*,$A^* + E^*$

Note that:

$$\frac{\partial E^*}{\partial z} = \frac{\partial E^*}{\partial z}\bigg|_{A^*=cons.} + \frac{\partial E^*}{\partial A^*}\frac{\partial A^*}{\partial z},$$

COMPARATIVE STATICS

The "Yitzhaki Puzzle"

	A^*	E^*	$A^* + E^*$
w	$+$	$+$	$+$
t	$-$	$-$	$-$
f	0	$-$	$-$
ϕ	$-$	$+$	$+/-$
p	$-$	$+/-$	$+/-$

Comparative statics for interior A^*, E^*,$A^* + E^*$

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Comparative statics for interior A^*, E^*,$A^* + E^*$

And it is:

$$\frac{\partial E^*}{\partial p} = \frac{[R(p) - 1]\,[1 - fR(\phi)]}{R(p) + fR(\phi)} \frac{\partial E^*}{\partial A^*} \frac{\partial A^*}{\partial p}$$

AUDIT PROBABILITY VS FINE

For a constant expected return to evasion, evasion is reduced by increasing the fine rate and decreasing the audit probability (Christiansen, 1980)

Restricting the attention only to evasion the finding is confirmed

$$\left.\frac{\partial E^*}{\partial p}\right|_{p[1+f]-1=const.} > 0$$

However, a revenue maximizing tax agency is interested in:

$$\left.\frac{\partial [A^*+E^*]}{\partial p}\right|_{p[1+f]-1=const.} \gtrless 0$$

Fine rate only affects **evasion** while **audit probability** affects both **avoidance** and **evasion**

PROBABILISTIC ANTI-AVOIDANCE

Attempts to shut-down avoidance schemes may be unsuccessful

Adopting the more realistic assumption $p_L \in (0,1]$

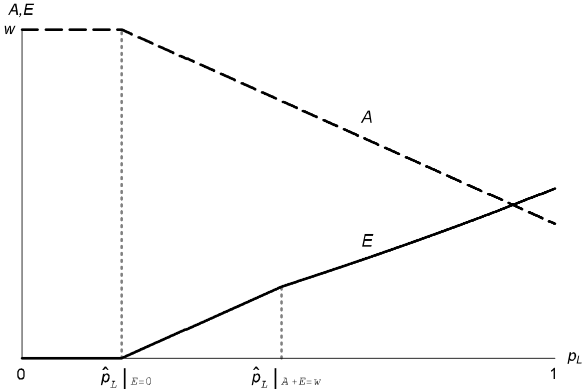
Optimal avoidance (and its CS) is the same with $p \to pp_L$

$$A^* = \frac{pp_L R(t)}{1-\phi}\left[R\left(pp_L\right)R\left(\phi\right)-1\right]w$$

Optimal evasion is no longer analytically tractable

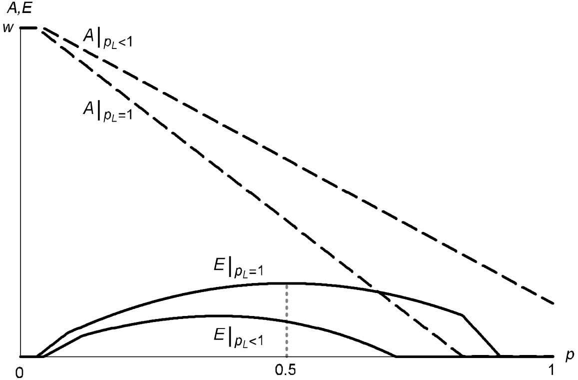
Further analysis by means of numerical optimization procedures confirms qualitative findings of CS on E^* and $A^* + E^*$

PROBABILISTIC ANTI-AVOIDANCE



Optimal avoidance and evasion for $p_L \in [0, 1]$.

PROBABILISTIC ANTI-AVOIDANCE



Optimal avoidance and evasion for $p_L < 1$ and $p_L = 1$.

CONCLUSION

CONCLUDING REMARKS

Tax **enforcement instruments are heavily affected** when avoidance and behavioural findings are accounted for

Evasion is negatively related to avoidance

Evasion and **avoidance increase** with **income**

FURTHER RESEARCH

Allow for imperfect audit effectiveness

Differentiate the market of avoidance schemes

Embed the model within a general equilibrium framework

Thank You!

Questions?